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The Canadian Amateur

Canada's Amateur Radio Magazine

La Revue des Radioamateurs Canadiens

JANUARY-FEBRUARY – JANVIER-FÉVRIER 2015

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Derek Hay, VE4HAY
Manitoba Repeater Society

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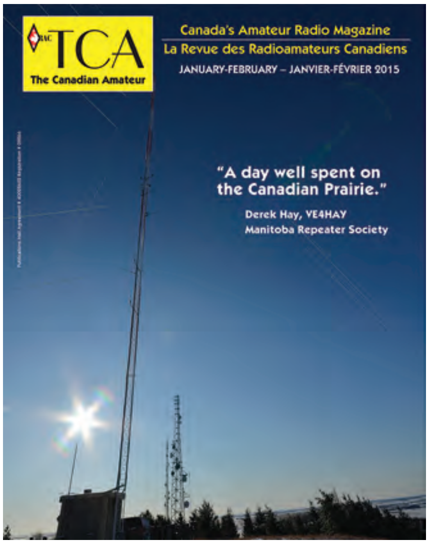
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JANUARY-FEBRUARY – JANVIER-FÉVRIER 2015
"A day well spent on the Canadian Prairie."
Derek Hay, VE4HAY
Manitoba Repeater Society

"The day started at sunrise with a two-hour drive, up to what may be the third highest bump on the Manitoba flat prairie, to service the VE4MRS repeater near Bruxelles.

Arrival at the site showed –24 degrees with an extreme cold warning and –33 windchill. "

– see pages 18 and 52 for the rest of the story

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ARTICLES WANTED

We would love to receive your articles – both technical and non-technical. Please send them to the TCA Editor at tcamag@yahoo.ca. The deadline for the next TCA is January 15.

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Silent Keys – In Memoriam

With regret, we record the passing of these Amateur Radio operators.
Nous avons le regret de vous annoncer le décès des radioamateurs suivants.

VA3AJG – Garry Adametz, of Chesterville, ON, at age 43, on August 16, 2014.

VA3DJF – Darren Forbes, of Whitby, ON, at age 44, on October 25, 2014.

VA3PR – Phil Robinson, of Kenmore, ON, at age 97, on October 27, 2014.

VE1GAN – Al Nickerson, of Charleston Queens County, NS, at age 85, on October 19, 2014.

VE1RDB – Doug Beaman, of Kingston, NS, at age 79, on September 6, 2014.

VE1TT – Kurt Arseneault, of Kentville, NS, at age 72, on November 2, 2014.

VE1WJ* – Sid Fetterly, of Halifax, NS, at age 91, on October 10, 2014.

VE1WML – Robie MacLeod, of Liverpool, NS, at age 86, on October 6, 2014.

VE1YQ – Bob Aggas, of Truro, NS, at age 96, on October 6, 2014.

VE2AAV – Toni Avanzini, of Gatineau, QC, at age 88, on September 11, 2014.

VE2NAO – Nicholas Ostopkevich, of Elgin, QC, at age 71, on October 13, 2014.

VE3AJN – DeVere Worrell, of Coldwater, ON, at age 92, on September 15, 2013.

VE3CCD – Al MacDonald, of Nepean, ON, at age 91, on October 29, 2014.

VE3CZN – Rae Baker, of Burlington, ON, at age 84, on November 3, 2014.

VE3FRW – Tim Bancroft-Wilson, of Newmarket, ON, at age 90, on September 25, 2014.

VE4DDC – Dorinda Bond, of Winnipeg, MB, at age 52, on October 16, 2014.

VE4DE – Cesar Jaegher, of Baldur, MB, at age 92, on September 11, 2014.

VE4FO – Frank Richards, of Winnipeg, MB, at age 86, on October 20, 2014.

VE4IJL – Irv Lindstrom, of Winnipeg, MB, at age 74, on October 17, 2014.

VE4OM – Mike Mudray, of Brandon, MB, at age 73, on September 27, 2014.

VE4RAY – Ray Hawkins, of Winnipeg, MB at age 83, on October 1, 2014.

VE5ACG – Bill Holder, of Kenaston, SK, at age 74, on October 14, 2014.

VE5KR – Dennis McMahon, of Saskatoon, SK, at age 79, on October 28, 2014.

VE5XE – David Rice, of Prince Albert, SK, at age 66, on August 18, 2014.

VE6AMM – George McIver, of Camrose, AB, at age 92, on October 13, 2014.

VE6EJ – Al Harrington, of Sherwood Park, AB at age 91, on November 8, 2014.

VE6NWR – Wayne Renwick, of Edmonton, AB, at age 74, on October 2, 2014.

VE6VNO – Doug Lofgren, of Camrose, AB, at age 63, on October 8, 2014.

VE7BMM – Bill Coltart, of Courtenay, BC at age 86, on October 29, 2014.

VE7CHO – Malcolm Dewar (VA7MD, of Surrey, BC, at age 91, on October 27, 2014.

VE7NTT – Peter Driessen, of Surrey, BC, at age 98, on October 21, 2014.

VE7RJD – Ralph Darlington, of Keswick, ON, at age 90, on October 30, 2014.

VE7ZTV – Don Thede, of Prince George, BC, at age 66, on November 10, 2014.

VE9ACP – Art Parson, of London, ON, at age 58, on October 21, 2014.

VE9HC – Hugh Clark, of Hartland, NB, at age 76, on October 20, 2014.

VE9ZI – Bernard Malandain, of Paris, France, at age 93, on September 1, 2014.

VY1CM – Les Boisvert, of Whitehorse, YT, at age 61, on September 9, 2014.

VY2RJ – Bob Johnson, of Charlottetown, PE, at age 96, on October 30, 2014.

*Note: In the above list an * indicates that a call sign has been reissued.*

The list of Silent Keys is prepared by volunteers at RAC Headquarters at rachq@rac.ca.

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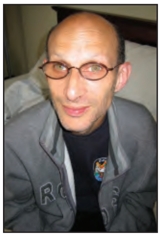

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Please see pages 59-63 for the Section Reports.

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FEEDBACK READERS WRITE TO THE CANADIAN AMATEUR

THANK YOU

In the November-December 2014 issue of TCA, I saw a document/and a letter that caught my attention:

- the final “Antennas & Transmission Lines” column (since 2003) by David Conn, VE3KL
- Robert (Bob) Eldridge, VE7BS: In Memoriam

I knew Bob very well. I had corresponded with him off and on during the past 20 years – a great guy and column writer.

David Conn, VE3KL, has certainly contributed significantly to TCA – a regular column since 2003, which has certainly required a lot of time to research and write.

I guess as he has said he intends to move to other areas of his interests. Certainly readers of TCA will miss his regular columns – and look forward to future contributions published in TCA.

John Belrose, VE3CVV
Ottawa, Ontario

THANK YOU

In the Newfoundland-Labrador Section, we have two province-wide HF Nets, the Cod Jigger in the morning (9:30 am local time on 7.085 MHz) and in the evening the Evening Traffic net at 7 pm on 3.740 MHz.

I have heard some criticism of these nets with respect to content and necessity – with respect to the nets being outdated and not needed in today’s advanced electronic communication world of smartphones, tablets and other wireless devices.

I have thought about this for a while and would like to offer this defence for and preservation of the nets.

1) These nets have been a part of our culture for quite a while now.
I remember as a young boy in Deer Lake in the fifties and sixties, visiting a friend at his house and watching him checkin, in CW, to the Evening Net and thinking to myself, one day I’m going to do that.

I guess that, and the fact my father was a Canadian National Telegraph (CNT) operator influenced me to get in to the hobby in 1993.

2) I know that today’s world has advanced to the point where our technology is in a way getting left behind in the dust. However, those modes will never be able to replace the camaraderie of the group who faithfully check in to the nets, where those you hear and haven’t met with face to face yet give you a reason to go to the next meeting or get-together.

3) The Traffic or Emergency side of communication can be replaced with the modern mode “stuff” with no reason to wait for the appointed net time, but that is no reason to throw out the baby with the bath water and go from something to nothing and kill the social aspect of the nets.

4) One of these days, hopefully never, we may be relied on when some major communication crisis erupts, so the practice of net control and checkin needs to become second hand to participants.

5) It is during the nets we check our equipment and, hopefully, the time when other hams would make you aware of any transmission problem you may have.

So I ask you to participate in nets, being respectful of the Net Controllers who give of their time to keep this aspect of the NL radio alive. Also be respectful of other participants, some of whom are new Amateurs and make the occasional error as all of us did when we were newbies.

If some aspect of the net causes you grief, discuss the matter *privately* with the Net Controller Managers, Bill Butt, VO1WB, for the Cod Jigger Net, or Lester Gould, VO1UG, for the Evening Net, and not in public. That hurts feelings and subtracts from the hobby.

Remember, Amateur Radio is a hobby that is to be enjoyed, in which you can continue the friendships you have made over the years and start new ones.

Charlie Marsh, VO1VZ
NL Section Bulletin Editor

Will you help me set up an
HF Remote Station at your QTH
I will provide the radio, G5RV and everything needed.
The station will be for your use and enjoyment too.
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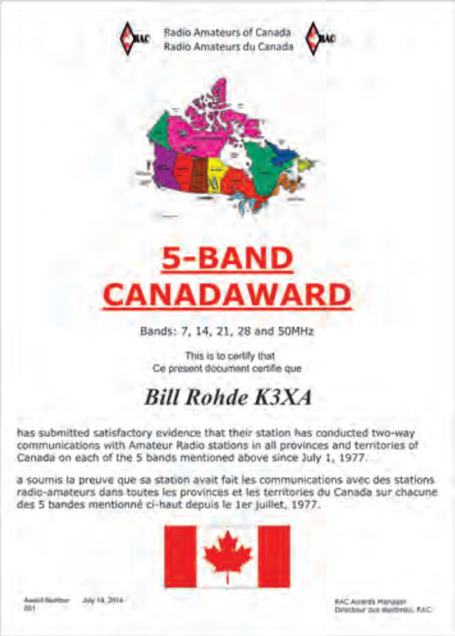
THE FIRST 5-BAND CANADAWARD



Radio Amateurs of Canada
Radio Amateurs du Canada

5-BAND CANADAWARD

Bands: 7, 14, 21, 28 and 50MHz

This is to certify that
Ce present document certifie que

Bill Rohde K3XA

has submitted satisfactory evidence that their station has conducted two-way communications with Amateur Radio stations in all provinces and territories of Canada on each of the 5 bands mentioned above since July 1, 1977.

a soumis la preuve que sa station avait fait les communications avec des stations radio-amateurs dans toutes les provinces et les territories du Canada sur chacune des 5 bandes mentionné ci-haut depuis le 1er juillet, 1977.

Bill Rohde, K3XA, has been licensed since 1959. He enjoys HF and VHF operation from his Virginia QTH, and often chases new band QSOs and DXCC entities.

Since Bill’s retirement from a career in Federal Law Enforcement, he has focused his operating efforts toward achieving the most challenging Operating Awards. During December 2013 he completed a 40 metre QSO with VY1JA to complete RAC’s requirements for the 5 Band CANADAWARD.

K3XA is the first recipient of this RAC Award, completing contacts with each Canadian Province and Territory on the 40, 20, 15, 10 and 6 metre bands. The contacts spanned the period of 1979 to 2013.

Bill is an Associate Member of RAC and an ARRL Life Member.

Congratulations Bill!

DEADLINES FOR TCA

March-April 2015: January 15

May-June 2015: March 15

July-August 2015: May 15

September-October 2015: July 15

November-December 2015: September 15

AROUND THE CORNER...

People, Places, News and Events on the Canadian Amateur Radio Scene

Don Dashney, VE3JM and George Spencer, VE3AGS, Appointed to Hall of Fame

The Board of Trustees of the Canadian Amateur Radio Hall of Fame is pleased to appoint Don Dashney, VE3RM (SK) of L'Orignal, Ontario and George Spencer, VE3AGS (SK) of Jordan (St. Catherines), Ontario to the Hall of Fame for 2014.

The families of the two appointees will receive this posthumous award in early 2015. A summary of their contributions to Amateur Radio will be published in an upcoming issue of *The Canadian Amateur* magazine. Both appointees are Silent Keys.

The appointments are to recognize Amateurs for outstanding achievement and for sustained service to Amateur Radio in Canada, or Amateur Radio at large. The Board of Trustees consists of an Amateur Radio representative from each province of Canada, appointed by the Directors of Radio Amateurs of Canada.

Ed Frazer, VE7EF
Chair, Board of Trustees
Canadian Amateur Radio Hall of Fame
Radio Amateurs of Canada

RAC Insurance Coverage

For well over a decade the Radio Amateurs of Canada has been seeking out insurance for affiliated Amateur Radio clubs. Many clubs view this service as one of the major benefits that RAC obtains for its members. From time to time RAC has gone to the market to find the best cost/benefit for its members.

We are pleased to advise that through our broker AON we have new a carrier (Intact Insurance) and that costs will not increase for 2015. Currently, insured clubs have received renewal forms and will be invoiced upon receipt of the forms by our office.

This program is primarily run by RAC volunteers and RAC would like to thank Jerry, VE3EXT, for his expertise and hard work in working with our broker to get the best deal for RAC clubs.

Glenn MacDonnell, VE3XRA
RAC Vice-President

Acting Section Manager Ontario North, South, GTA

I am pleased to announce that Allan Boyd, VE3AJB, has indicated his commitment to RAC by accepting the role of Acting Section Manager for Ontario North.

In addition, Allan will continue in his role as Chair of the Ontario Section Managers Council and he will also serve, in an Acting role, as the Section Manager for the Ontario South and the Ontario Greater Toronto Area (GTA) sections until such time as these positions are filled.

You will recall that Allan was the Section Manager for the Ontario section before the creation of new sections in Ontario.

I want to thank Allan for his continuing support of RAC. He has been a pillar of RAC for over a decade.

Geoff Bawden, VE4BAW
Acting Chief Field Services Officer

Winnipeg RAC/ARES Emergency Coordinator VE4MBQ Receives RAC Membership Recognition Award

After over a decade of providing leadership during numerous floods and storm events in the Red River Valley, Jeff Dovyak, VE4MBQ, received the RAC Membership Recognition Award.

Jeff was nominated by his peers from RAC/ARES Winnipeg due to his dedicated service in providing leadership, especially during the annual Manitoba flood season.

Jeff provides leadership in working closely and effectively with such entities as the City of Winnipeg, Manitoba Emergency Measures Organization, the Prairie and Arctic Storm Warning Centre and other provincial and municipal agencies.

This recognition is overdue and Jeff has indicated that he looks forward to more decades providing service to Manitoba and its communities.

In the photo Jeff is the handsome one on the right.

Geoff Bawden, VE4BAW
RAC President and Chair

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NEW RAC MEMBERSHIP PRIVILEGE

RAC is pleased to announce that it has recently reached a deal to provide RAC members with a 10% discount on books purchased from the Radio Society of Great Britain (RSBG).

To take advantage of this discount go to http://www.rsgbshop.org/ and pick your book and when filling out the checkout screens use the phrase "RACdiscount" in the field marked "Discount or Voucher". Your cost of the book (but not carriage) will show a 10% discount.

PRIVILÈGE POUR LES NOUVEAUX MEMBRES DE RAC

RAC est heureux d'annoncer qu'il a récemment conclus une entente à l'effet de faire avoir aux membres de RAC un escompte de 10 % sur l'achat de livres de la Radio Society of Great Britain (RSBG).

Pour profiter de cet escompte, allez à http://www.rsgbshop.org/ et choisissez votre livre, puis au moment de remplir le formulaire, pointez la phrase "Escompte RAC (RACdiscount)" dans le champs indiqué "Escompte (Discount) ou Voucher". Le prix de votre livre (mais non le transport) indiquera un escompte de 10%

A MESSAGE FROM THE PRESIDENT / UN MESSAGE DU PRÉSIDENT

Geoff Bawden, VE4BAW
204-257-1414
ve4baw@rac.ca

Welcome to 2015. We are now midway through the second decade of the 21st Century.

I was thinking about the past and pondering the future. Radio is arguably one of the most ubiquitous technologies with a history that stretches from the late 19th to the 21st century.

As a technology its contribution is virtually invisible (and by that I mean unrecognized and taken for granted). It is a profound and pervasive enabler of other technologies and not "merely" a vehicle of inter-human communication as envisioned in Marconi's and Tesla's time.

I was pondering what would be perceived as the greatest radio achievement or development of 2014. The fact that almost everything talks to everything else without all those connecting wires? The fact that it is almost impossible in a big (and not so big city) not to have wireless Internet? Car radar? (Radar stands for radio detection and ranging but I know you knew that). A side comment: the Australians were right in continuing to use the phrase "wireless" as in "Wireless Institute of Australia". That phrase was clunky and archaic when I was a kid and now is sexy and hip (or is "hip" now clunky and archaic?).

What about the fact that we have seen the surface of a comet? I would argue that the Rosetta/Philea mission illustrated the value of radio and grabbed the public attention (heck, for a brief shining moment it beat a naked Kardashian in hits on the Internet – maybe there is hope for the human race after all!).

The Rosetta spacecraft and the Philea climbed successfully out of the Earth's gravity in March 2004 and, in order to gain enough velocity to catch a comet, performed "slingshot" maneuvers four times (Earth in March 2005; Mars in February 2007; Earth in 2007 and Earth in November 2009) and for good measure flew close passes to two asteroids (Steins in October 2008, Lutetia in July 2010) before going out almost all the way to Jupiter orbit and then falling sunward to rendezvous with 67P/Churyumov-Gerasimenko.

Then Rosetta went into orbit around the comet and released Philae. Alas, Philae landed (after a couple of bounces) in the shade and its solar cells couldn't charge its batteries but it (she?) sent back photos and data from the surface of the comet before going into hibernation. The comet is still falling toward the sun and Philae may wake up and send more data in the spring. Good on ya, European Space Agency.

Now I know that you are ahead of me on where I am going. One of the absolutely necessary technologies for this mission is, of course, radio. All that chatting between and among Rosetta, Philae and Earth is by (gasp) radio. When the subject of radio being an obsolete technology or an old man's hobby comes up, I have a new talking point that is sexier than talking about wireless speakers. Radio stretches from Tesla to Rosetta and we Amateurs are proud parts of that continuum.

Bienvenue en 2015. Nous sommes maintenant à mi-chemin de la deuxième décade du 21ième siècle.

Je pense au passé et je regarde vers l'avenir. La radio est incontestablement une des nombreuses technologies que l'on rencontre souvent dont l'histoire s'étend depuis le 19ième jusqu'au 21ième siècle.

Sur le plan de la technologie, sa contribution est virtuellement impossible à évaluer (je veux dire par là qu'elle n'est pas reconnue comme telle et prise pour acquise). La radio est d'abord un solide soutien pour d'autres technologies et non l'heureux instrument de communication entre humains comme on le prévoyait au temps de Marconi et de Tesla.

Je réfléchissais à ce qui pourrait être perçu comme le meilleur développement et la plus belle réalisation radio en 2014. Le fait que presque tout s'adresse à tout sans recourir à toutes ces connections filaires? Le fait qu'il est presque impossible dans une grande (et pas si grande) ville de ne pas recourir au sans fil, à l'internet, au radar dans les voitures? (Le radar est utilisé pour la radio détection et le tracé des déplacements, mais je sais que vous savez tout cela!). Un commentaire en aparté : Les Australiens avaient raison d'utiliser le terme "sans fils – wireless" comme dans "Wireless Institute of Australia". Le terme était boiteux et suranné au temps de ma jeunesse; maintenant il est excitant et dans le vent (à moins que le mot excitant soit maintenant devenu boiteux et surannée?).

Que dire après avoir vu la surface d'une comète? Je pourrais avancer que la mission Rosetta – Philea a mis en évidence l'importance de la radio et ainsi capter l'attention du public (et pour un bref moment éclipser une « Kim Kardashian » nue sur internet – peut-être y a-t-il de l'espoir pour l'espèce humaine après tout!).

Le vaisseau spatial Rosetta – Philea s'échappe de la gravité terrestre en mars 2004 et, dans le but de gagner assez de vitesse pour rejoindre une comète, doit exécuter des manœuvres de fronde à quatre reprise (la Terre en mars 2005; la planète Mars en février 2007; la Terre en 2007 et de nouveau la Terre en 2009) et, dans son vol bien calculé, éviter deux astéroïdes (Steins en octobre 2008, Lutetia en juillet 2010) avant de prendre la direction de l'orbite de Jupiter, puis de cheminer vers le Soleil et réaliser son rendez-vous avec 67P, Churyumov-Gerasimenko.

Rosetta se place alors en orbite autour de la comète et libère Philae. Hélas, Philae atterrit, après avoir effectué deux bonds dans une aire ombragée où il devenait difficile aux cellules solaires de recharger les batteries. Mais des photos et des données de la surface de la comète avant que ne commence la période hibernation sont envoyées vers la terre. La comète continue de se diriger vers le soleil et Philae pourrait bien se réveiller le printemps prochain et envoyer plus de données. Bonne chance à l'Agence spatiale européenne.

Maintenant, je sais que vous avez deviné où je m'en vais! Une des technologies incontournables pour cette mission est, bien entendu, la radio. Tout se bavardage entre Rosetta, Philae et la terre est possible grâce à la radio. Quand on dit de la radio qu'elle est une technologie dépassée ou encore le hobby de personnes âgées, j'ai un nouvel argument plus excitant qu'une discussion à propos de haut-parleurs sans fil. La radio existe depuis Tesla jusqu'à Rosetta et nous amateurs sommes fiers de participer à cette pérennité.

NEW MEMBERSHIP PRIVILEGE

RAC is pleased to announce that it has recently reached a deal to provide RAC members with a 10% discount on books purchased from the Radio Society of Great Britain (RSBG). To take advantage of this discount go to http://www.rsgbshop.org/ and pick your book and when filling out the checkout screens use the phrase "RACdiscount" in the field marked "Discount or Voucher". Your cost of the book (but not carriage) will show a 10% discount.

UPDATE ON PRESIDENT'S REPORT TO THE AGM

At the Annual General Meeting in Ancaster, Ontario in 2013, I presented a report which contained 34 observations. Occasionally, I review those observations to see if they are still relevant (the complete President's Report to the AGM can be found on page 5 of the November-December 2013 TCA and is available on our website at https://www.rac.ca/downloads/agm/AGM2013_President_en.pdf).

Some of those observations were:

1) Outcomes in a volunteer organization are determined by the time allocated by the volunteer and the skills of that volunteer.

5) Members have the expectation of professional not amateur services from RAC and have no end of good ideas of what the organization should do.

6) The usual suspects do all the work.

8) Volunteers can depart by giving you a one line email: "I am gone".

9) There will be someone that you can't please no matter what you do.

31) People are happy to write you a memo about what they think is wrong but evaporate when the heavy lifting is required.

34) RAC is not a club; it is a national organization with a mandate to enhance Amateur Radio. Overall performance should be measured in whether spectrum is being enhanced and defended and whether Amateur Radio is growing or shrinking.

I was in management for about 25 years and I have learned only one thing about management since coming to RAC: a volunteer organization is not a professional organization and you have to modify your expectations accordingly. Everything takes longer than you would like. Organization charts are the reverse of organization charts in professional organizations – the person in the lower box in the hierarchical organization chart of a voluntary organization can delegate upward and the individual in the upper box cannot issue directions to the individual in the lower box. It is the nature of the beast. (Bullet numbers 1, 6, 8 and 9).

Hardly a new observation but I have noticed that the law of human nature has not been repealed. Every month I will get an email from someone suggesting a new activity or program for RAC and they will sometimes describe it as "easy" or "trivial".

It is amazing how easy things are when you don't have to do it.

I will quote a certain Director who has been known to say "Someone has to do this – are you someone?"

PRIVILÈGE POUR LES NOUVEAUX MEMBRES

RAC est heureux d'annoncer qu'il a récemment conclus une entente à l'effet de faire avoir aux membres de RAC un escompte de 10 % sur l'achat de livres de la Radio Society of Great Britain (RSBG). Pour profiter de cet escompte, allez à http://www.rsgbshop.org/ et choisissez votre livre, puis au moment de remplir le formulaire, pointez la phrase "Escompte RAC (RACdiscount)" dans le champs indiqué "Escompte (Discount) ou Voucher". Le prix de votre livre (mais non le transport) indiquera un escompte de 10%.

MISE À NIVEAU DU RAPPORT DU PRÉSIDENT À L'AGM

À l'Assemblée générale annuelle à Ancaster, Ontario, en 2013, j'ai présenté un rapport qui contenait 34 observations. De temps en temps, je reviens sur ces observations pour voir si elles sont encore pertinentes (le rapport complet du président à l'AGM peut être consulté à la page 5 du TCA de novembre – décembre 2013. TCA est disponible sur le site web à https://www.rac.ca/downloads/agm/AGM2013_President_en.pdf).

Quelques unes de ces observations sont comme suit :

1) Les réalisations d'une organisation bénévole sont déterminées par le temps qu'un bénévole y alloue et sa compétence.

5) Les membres veulent des services professionnels, non des services d'amateurs de la part de RAC et n'ont pas vraiment une bonne idée de ce que l'organisation devrait faire.

6) Les préposés habituels doivent accomplir tout le travail.

8) Les bénévoles peuvent s'absenter en envoyant un courriel d'une ligne : "Je suis parti!".

9) Il y aura toujours quelqu'un à qui vous ne pourrez plaire, peut importe ce que vous ferrez.

31) Les gens sont heureux de vous écrire pour vous dire ce qui ne va pas mais disparaissent quand arrive le temps de passer à l'action.

34) RAC n'est pas un club; c'est une organisation nationale dont le mandat est de faire progresser le radioamateurisme. Le rendement global doit être évalué selon que le spectre a été renforcé et défendu et que la radio amateur a progressé ou régressé.

Je suis dans l'administration depuis environ 25 ans et je n'ai appris qu'une chose à ce propos depuis que je travaille avec RAC : une organisation de bénévoles n'est pas une organisation de professionnels; vous devez revoir vos attentes en conséquence. Tout prend plus de temps. Les organigrammes sont à l'opposé de ceux des organisations professionnelles – une personne au bas de la pyramide d'une organisation de bénévoles peut commander à celle du sommet, et la personne au sommet ne peut exiger quoique ce soit de celle qui travaille à la base. Ainsi vogue le bateau! (Points 1, 6, 8 et 9).

Une nouvelle et difficile observation m'a fait remarqué que la nature humaine n'a pas changé. Chaque mois, je reçois un courriel de quelqu'un qui suggère une nouvelle activité ou programme pour RAC. Parfois il la ou le décrit comme facile et simple. C'est surprenant comme les choses nous apparaissent faciles quand on n'a pas à les réaliser!

Outcomes require work and RAC is not an organization separate from its members nor does it have a room full of worker bees or policy wonks waiting for good ideas to pour in. Good ideas abound, and we all know what they are. RAC has many individuals, volunteers, who are the pillars of the organization and who have helped to lift the log year in and year out (sometimes for decades) – usually without recognition and often at their own expense. These people are committed and have a full “workload”. There are others who show up, promise to do something and then disappear.

Before retirement I was used to working in an environment where there were line employees and staff employees – in my ideal world staff supported line in getting the work done. There were many times when staff got it into their heads that their job was to stand on the side and tell line how easy the task was if only they (line) just followed staff’s advice (although staff were never accountable for outcomes and many times shied away from that accountability if offered).

We need line volunteers. More log lifters. Are you that someone? (Bullets 1, 5, 6, 8, 9, 31)

Welcome to 2015. I hope that your year will be terrific and you and yours will have a healthy and prosperous year.

Geoff Bawden, VE4BAW – RAC President and Chair

Je citerai un certain directeur qui avait l’habitude de dire : “Une personne doit faire ceci – êtes-vous une personne?” Les réalisations demandent du travail et RAC n’est pas une organisation qui peut fonctionner sans ses membres. Elle ne possède pas un lieu rempli d’abeilles ouvrières ou encore qui fonctionne selon une politique loufoque en attente de bonnes idées pour lui donner un sens. Les bonnes idées abondent et nous les connaissons. RAC a plusieurs personnes, bénévoles qui sont des piliers de l’organisation et ont aidé, bon an mal an (parfois pendant des décennies) – habituellement dans l’ombre et souvent à leurs propres frais. Ces personnes travaillent à temps plein. Mais il y en a d’autres qui arrivent, font des promesses et disparaissent.

Avant de prendre ma retraite, j’avais l’habitude de travailler dans un milieu où travaillaient des ouvriers sur une chaîne et des employés cadres – dans un monde idéal, pour moi, les cadres soutiennent les ouvriers afin d’assurer l’accomplissement du travail. Plusieurs fois les employés cadres prenaient sur eux de demeurer près de la chaîne de montage pour faciliter la tâche des ouvriers par leurs conseils concrets et avantageux pour plus d’efficacité (quoique les cadres n’étaient jamais crédités pour les résultats et plusieurs fois tenus à l’écart lors d’évaluations, le cas échéant).

Nous avons besoin de travailleurs bénévoles. Plus d’ouvriers. Êtes-vous de ceux-là? (Points 1, 5, 6, 8, 9, 31)

Bienvenue en 2015. J’espère que votre année sera merveilleuse et que vous et les vôtres connaîtront une année prospère, en santé.

Geoff Bawden, VE4BAW
RAC Président-directeur général

– Traduction par Claude Lalande, VE2LCF. Merci Claude!

JAPANESE SATELLITES CARRYING AMATEUR RADIO PAYLOADS ARE LAUNCHED INTO DEEP SPACE

Japan has successfully launched its Hayabusa 2 asteroid sample-return mission into deep space, and with it, two satellites carrying Amateur Radio payloads. A Japan Aerospace Exploration Agency (JAXA) rocket lifted off on schedule early on December 3 (UTC), carrying the Hayabusa 2 spacecraft on the first leg of its journey to Asteroid 1999 JU3. Along for the ride into deep space are two Amateur Radio satellites, Shin’en 2 (Abyss 2) and ARTSAT2: DESPATCH. The launch had been postponed twice owing to unfavorable weather conditions. Shin’en 2 will identify as JG6YIG, while ARTSAT2:DESPATCH will use the call sign JQ1ZNN.

Shin’en2 carries a 0.1 W CW beacon on 437.505 MHz and telemetry on 437.385 MHz (0.8 W) using a mode similar to WSJT. It also will carry a F1D digital store-and-forward transponder with an uplink of 145.942 MHz and a downlink at 435.270 MHz (0.4 W), but not the Amateur Radio Mode J linear transponder announced earlier. The data format is posted on the Kagoshima University website.

A linear transponder had been part of the initial design, but, according to Hideo Kambayashi, JH3XCU, Japanese regulations would not allow it, and it would have taken too long to negotiate a regulatory variance. The digital transponder will offer an opportunity for earthbound Radio Amateurs to test the limits of their communication capabilities, however. The project also is hoping to gather listener reports.

ARTSAT2: DESPATCH carries a 7 W CW transmitter on 437.325 MHz and will have onboard the first sculpture ever to be carried into deep space. The ARTSAT2: DESPATCH deep-space mission has announced that it is seeking “exceptionally skilled ham operators” as part of its “cooperative diversity communication” experiment. This effort will attempt to intercept signals from the spacecraft not only at the ground station in Tokyo, but at Amateur Radio stations around the world, “in order to reconstruct the original data from the spacecraft.”

“Reception of such weak signals to reconstruct data from the spacecraft will require the expertise of exceptionally skilled ham operators,” the satellite’s developers explained on the ARTSAT website.

The two spacecraft will have an elliptical orbit around the Sun and travel to a deep space orbit between Venus and Mars. With an orbital inclination of nearly zero, the spacecraft should stay in Earth’s equatorial plane. The distance from the Sun will be between approximately 6.5 million and 12 million miles.

SPINSAT NOW IN ORBIT

Meanwhile, the US Naval Research Laboratory SpinSat satellite was successfully deployed from the International Space Station on November 28 using the Cyclops deployment system. SpinSat was carried to the ISS on September 21 via the SpaceX Falcon 9 resupply vehicle. For the next few days, SpinSat’s orbit will approximate that of the ISS. The ISS real-time tracker on the ISS Fan Club website can show when the spacecraft are within range.

The 125-pound SpinSat is a 22- inch diameter sphere carries a 2 watt 9600 bps AX.25 packet radio store-and-forward system on 437.230 MHz. The satellite’s primary mission is to demonstrate a new micro-thruster technology, from which SpinSat derives its name; its 12 electronically controlled solid-propellant thrusters will be fired in pairs to spin the spacecraft.

While in space, SpinSat will be used in a test to calibrate the Space Surveillance Network. Lasers will be aimed at the spacecraft from Earth, and the reflected light measured to determine the where the satellite is passing overhead. SpinSat also will model the density of the atmosphere.

Equipped only with primary batteries and just 4.8 grams of fuel, the satellite’s working phase is expected to last up to 6 months.

ARRL News: AMSAT, AMSAT-UK, Southgate Amateur Radio News

SIX METRES AND DOWN

AMATEUR RADIO – DON'T TAKE IT FOR GRANTED

Dana Shtun, VE3DS
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Toronto, ON M9A 1Z3
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W: www.qsl.net/ve3dss

Hello and a Happy New Year to all our RAC members! Thank you for supporting your national society!

Remember, everyone at RAC cares deeply about the world's greatest avocation – Amateur Radio – and your support and frankly that of every Canadian Amateur is critical to our present activity and future activity

All too often in this busy world of ours, people take so much for granted.

Our freedoms, we owe to those who fought and died.

Our access to spectrum, we owe to those who stood up and lobbied for those critical pieces of the RF spectrum for Amateur Radio.

So one of the best ways to show your appreciation is to operate in an appropriate, respectful and businesslike manner at all times.

Use your call sign proudly, be a considerate and helpful operator, note and report illegal activity, sloppy operating and incursions from non-Amateur sources.

Be a good steward, and pass the torch on to the next generation of new hams.

This is not only important on HF where the whole world is listening, but also on VHF/UHF and microwave, as others *are* listening – and today with Software Defined Radios even more are tuning in and wondering who we are. So let's show them our best face – and who knows maybe they will join us as well. Never forget who came before us and leave a legacy for those yet to come.

BLAST FROM THE PAST

It's a long story, but one reason for this philosophical stuff was some happy memories of getting my ham ticket. I learned CW using a WWII surplus Marconi R1155 receiver, which was originally used in the Lancaster Bomber. I've kept this particular radio all these years so it's still in really good shape, and I thought I'd fire it back up after leaving it on the shelf in the 1980s. This was all due to my attending the Drake and Collins functions at Dayton this year with Peter, VE7PS. I thought, hmm, maybe I could get the Marconi going again, for fun

Over the last 40 odd years, I had tossed out the original power supply that I'd built when I was 13 so I set about collecting information to rebuild one. In the process I stumbled into the Wireless Set No 19 Group on Yahoo, as well as a whole cadre of people in Canada, England, Africa and Australia who are keeping these Marconi radios, and numerous others, operational. I must say I now have a complete manual on how to rebuild these radios, complete with schematics, including a huge one from Jerry, VE6CPP, who also sent me a spare cabinet. I even found the correct Jones plugs for the radio, on eBay, so I no longer have to worry about getting shocks from exposed HV connections, which was a regular thing when I was a teenager.

In addition, I mentioned to the Yahoo group that I really regretted not having the transmitter, and wouldn't you know it but a ham in British Columbia, Lawrence, VE7DPQ, offered me one that he had in the original shipping box. So now, after 45 years, I can put together a complete Marconi T1154/R1155 station for HF, and add VHF to it with my 1950 vintage 417A converter for 144 MHz! Now all I need is to get back my old AM transmitter.

If anyone has an old SCR-522 set in the garage, or a carbon microphone, drop me a line!

VHF IN THE 1940s

– from the pages of *XTAL*

I have a pretty complete set of the old Canadian magazine *XTAL*, which was published by the Canadian Amateur Radio Operators' Association (CAROA), which was our national society from 1935 to the mid-1950s. I had stashed them in the furnace room and recently "found" them again, after finishing the cleanup from the July 2013 monsoon and flash flood that hit us here in Toronto. While thumbing through and looking at the ads for post-WWII radios going for pennies on the dollar, I noted the VHF column and thought I'd share a bit of that with you all, as I'm sure many don't have a clue what a 417A is, or a 2E26, or a Collinear array…

So here goes…

Gord Coleman, VE3ANY, edited the "VHF in Canada" column for years in *XTAL*.

In the February 1947 issue, he mentions that many W – VE contacts were not being made on the new 50 MHz band because the Yanks couldn't read our signals!

It turns out that in the US rigs for 50 MHz had to be crystal controlled and most had superhet receivers. While in Canada a lot of the guys were still using regenerative receivers and "modulated oscillators". Gord goes on to explain what you need to do to stabilize your Transmitter and was hopeful that our regulators would update our regs to require stabilization.

(Today, many VHF/UHF guys have their LOs locked to secondary standards – now that's stability 70 years on, eh?)

50 MHZ – F2 RETURNS BRIEFLY

Old Sol woke up again in late October and the solar flux flew up to over 200 for a few days. October 22 found the Solar Flux at 199, with FK8CP working into Ohio and Virginia.

The next day, October 23, the flux hit an astonishing 227 and both VE3FGU and VE3KH reported hearing, but not completing, QSOs with VP8NO on that day.

There were some pretty interesting paths open up during this time including VE2XK working C5 in The Gambia, others working 6W in Mali, ZD7, VP8 as well as LU, CX and CE. In addition, there were numerous mid North America contacts with FK8CP, E51, VK and KH6 stations.

I think the West Coast guys like John, VE7DAY, Steve, VE7SL, Ralph, VE7XF and Peter, VE7PS, among others, got into much of that trans-Pacific and South America action.

Sadly, in FN03, aka "The Black Hole on the North Shore of Lake Ontario", only bits of signal were copied during these openings.

In Alberta, Grant, VE6TA, reported copying FK8CP by pointing north into the Aurora, earlier in October. This technique was first noted during the November 1989 super Aurora when VE3FGU worked Hawaii by pointing north. No one believed that he did it until the card arrived in the mail. So there is a lesson to be learned – and I can verify that it works having experienced it during another major opening years later.

Here's John, VE7DAY's report for November 10, 2014:

"We had an interesting opening today. I was tuning around the beacon band and saw a trace on the P3 screen. I thought it may be a Colorado beacon but when I tuned it in I was very surprised to hear LU2ERC/b quite strong, about 539. I checked 50.110 and heard several weak SSB signals, called a few CQs and... 10 20:36 LU9AEA; 20:38 LU6DRV South American stations were getting weaker but signals surged from time to time. Between 21:09 and 21:39 I worked CX1DDO, CX5BL, CX1TH, LW3EX, XE1FFA, CX2CQ, LU4DPL, LW3EX, LU6DLB and LU9DFN.

As the signals faded, I could hear South Pacific stations off the back so I turned to the southwest and worked Hawaii stations with signals ranging from 59 to 559, including K6MIO/KH6, WH6XM, KH6HI, KH6U and KH7Y (heard).

I also heard ZL1RS just above the noise for a few minutes, not solid and also some North American stations backscatter. I looked to South America several times but heard no more that way. Just listening around now, 02:20 Z and I hear FK8CP calling CQ about 529.

I'm sure others in the Pacific Northwest worked a lot more as I seemed to be on the edge of the opening.

I heard Ralph, VE7XF, working both CW and SSB. I think he worked several more than me including ZL1RS."

VUCC #2 – LASER

Congratulations to Jimmy, VE2JWH, for Laser VUCC #2! It was a pleasure to verify the cards for VUCC. The photo below shows the guys during one of their contacts with Chip, W1AIM; from left are Jacques, VE2BP, Don, VE2DIW and Jimmy, VE2JWH.

Jimmy further reported copying the 2 metre 145.98 MHz beacon on the Manfred Lunar Flyby at the end of October!

MICROWAVE UPDATE OR ANYTHING BELOW 77 GHZ IS DC BANDS!!

Now let me say that the higher microwave bands are still eluding me so I defer to my colleagues who are there now. I'm hoping to get there soon, but anyway I went to Microwave Update this year as it was being very ably hosted by the Rochester VHF Group and was within easy driving distance of Toronto.

Over 100 people attended the weekend conference held at the Rochester Airport Marriott, and Canadians were well represented with 17 in attendance plus VK2AXA from Australia and SM4FXR from Sweden. Among the Canucks were: VE4MA; VE6TA from the West; a group from Eastern Ontario/Quebec (VE3XRA, VE3IRR, VA3CDD, VE2FUT, VE3SMA, VE2XX, VE2LC, VE2GTZ, VE3CVG, VE3EW, VA3NRN/VE3AX); as well as the GTA gang (VE3SMA, VE3EG, VE3CRU, VE3DS, VE3NPB and VE3NYZ)

The presentations were of great interest and quality, the mini-fleamarket was very interesting, the dinner was great as was the speaker Kent, WA5VJB, who took us on a historical tour of radio and microwaving (spark gap microwave transmitter!), and the accommodations were first rate. Oh, and the Toronto Marlies hockey team crashed the hotel for one night as well, so hey, the Canucks ruled!

Will I ever get on 77 GHz – well you never know. It was great to meet a lot of on the air buddies in person which is one great reason to go. The above photo (courtesy of VE3DS) shows some of the Canadian group at the dinner.

Plan to attend, or actually host, the next VHF/UHF Microwave convention, eh!

For more information about this year's event visit: http://www.rvhfg.org/mud2014/

Well that's it for now, the solar flux is heading up again and is at 160 so perhaps we may see some F2 on 50 MHz to report in the next column. In the meantime, best of the new year to you and let's hope we get some good DX openings on our bands above 50 MHz, aka 6 metres and down!

REPORT ON WORLD RADIO CONFERENCE 2015 PREPARATORY MEETINGS

Bryan Rawlings, VE3QN
Special Advisor – WRC-15
Radio Amateurs of Canada

In my last two articles in *The Canadian Amateur,* I covered the detailed documentation Radio Amateurs (and other users of the radio spectrum) must assemble and present before a change to the international frequency allocations can be considered.

For all its complexity, there does arrive a point when arguably it's possible to say "We're ready !" and that point was reached at the Preparatory Meetings which took place at the International Telecommuncation Union (ITU) headquarters in Geneva, Switzerland in late October and early November.

A report detailing the viability of Amateur Radio operations sharing spectrum near 5 MHz with the incumbent users there today was completed and given an official report number: ITU-R Report M.2335. (A very simplified description of what goes into reports like this was covered in the November-December 2014 issue of TCA).

The Report, which runs to some 130 pages, contains an opening preamble – which was agreed to by all interested contributors: Canada, China, Norway, The Netherlands, Russia, the United Kingdom, the United States and the International Amateur Radio Union – and which summarizes the nature of the allocation being sought, the reasons for it and the approaches used by the different parties who have contributed studies.

The nine annexes – three submitted by Canada – include complete sharing studies by Canada, China, Russia and the United States each with different attributes and, in some cases, with different conclusions.

This "Compatibility" Report joins a "Conference Preparatory Material (CPM)" document, which was agreed to in the Preparatory Meetings of June 2014, as well as a Report on the characteristics of the signals Radio Amateurs might emit at 5 MHz, which was completed in December 2013.

These documents should ensure consideration – during the upcoming World Radiocommunication Conference which will take place in Geneva from November 2 to November 27 – of the agenda item proposing a secondary allocation to the Amateur Service near 5 MHz. In other words, subject only to an important meeting in March to review – and possibly revise – the CPM document, we are ready and have our fingers crossed.

As I have often mentioned, the vision of obtaining an international allocation at 5 MHz has always been a long shot.

There are very formidable stakeholders who are strongly opposed to Radio Amateurs sharing this spectrum, even as secondary users.

Their arguments together with those of administrations who are favourable to such an allocation will play out in Geneva next November.

Whatever the final outcome I am confident that those who have worked this issue with their home administrations and in the ITU have presented the best case they are capable of and we are all hopeful of some form of success.

A Draft New Report on the Characteristics and Compatibility of automotive collision-avoidance radar systems was presented for approval during the November meetings.

Notwithstanding that Radio Amateurs have a primary allocation in 77.5 to 78.0 GHz, where these radar systems would operate, interference to Amateur receivers in 77.5 to 78 GHz – assumed located on a mountain top or on the upper floors of a high building – was analyzed and was not considered likely to be a significant problem.

In May the ITU will celebrate its 150th anniversary and there are plans to observe this including a special event call sign 4U0ITU.

In addition, during WRC-15 from November 2 to November 27, operations from the ITU in Geneva will use the special event call sign 4U1WRC.

TCA

DARF IS THE DEFENCE OF AMATEUR RADIO FUND

It is a Trust Fund established in the early 90s by the Canadian Radio Relay League to provide financial support for research, and to defray travel expenses of a delegate to World Radio Conferences to defend the Amateur Radio bands.

It costs a lot to attend a WRC meeting. Travel and meeting expenses for a three- to four-week conference can top $10,000 or more in an international city like Geneva, even for the most frugal. Without new donations, DARF funds on hand won't last indefinitely.

The Fund is maintained by Donations from individual Canadian Amateurs and from Canadian Amateur Radio Clubs.

Donations are deposited in the trust fund account and the fund is administered by the three DARF Trustees.

The trust is entirely separate from, and cannot be used for, RAC financial transactions.

Donations may be made by cheque only.

Cheques should be made out to "The Defence of Amateur Radio Fund" and may be sent by mail to:

"Defence of Amateur Radio Fund",
720 Belfast Road,
Suite 217, Ottawa K1G 0Z5

Visit darf.rac.ca for more information.

AMATEUR RADIO SATELLITES

Keith Baker, VA3KSF/KB1SF
PO Box 33
Corunna, ON N0N 1G0
E: va3ksf@rac.ca

In previous columns, I've discussed how those interested in receiving or actually working through our growing fleet of Amateur Radio satellites could do so with just modest radio equipment.

In this edition, I'll turn the spotlight on one of our oldest satellites…one that's been in orbit (and at least semi-operational) for over *40 years now!*

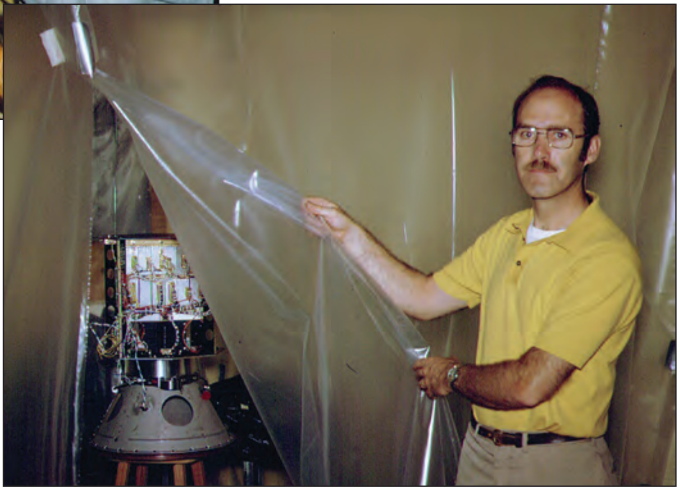
OSCAR 7's 40TH ANNIVERSARY

AMSAT-OSCAR 7 (AO-7) was launched on November 15, 1974 by a Delta 2310 launcher from Vandenberg Air Force Base near Lompoc, California as a secondary payload along with ITOS-G (NOAA 4) and the Spanish INTASAT satellite. AO-7 was the second satellite in AMSAT's so-called "Phase II" satellite series (Phase II-B). That is, unlike their relatively short lifetime predecessor satellites that only carried beacon transmitters, AMSAT's Phase II satellites carried Amateur Radio RF transponders aboard.

When it was launched into a relatively circular, 1444 by 1459 km, 101.7-degree inclination orbit, the octahedral shaped (360 mm high and 424 mm in diameter) satellite weighed in at about 65 pounds.

Portions of this article previously appeared as "Happy Birthday OSCAR 7!" in the December 2014 edition of The Spectrum Monitor Magazine. Thank You TSM!

AMSAT's satellites are often built in the basements and garages of its experimenters. Here Dick Daniels, W4PUJ (SK) solders components into one of AO-7's electronic modules. (Courtesy: AMSAT)



AO-7's final assembly "Clean Room" consisted of stud lumber and plastic sheeting installed in the basement of a private home in the suburban Washington, DC area. Despite such sparse assembly arrangements, AMSAT has never a satellite rejected by a launch agency because of contamination. (Courtesy: AMSAT)

The antenna array consisted of a circularly polarized, canted turnstile VHF/UHF antenna system along with an HF dipole.

Similar to its immediate predecessor (AMSAT-OSCAR 6), AO-7 was built by a multinational (German, Canadian, United States and Australian) team of Radio Amateurs under the direction of AMSAT-North America. It carried both a *non-inverting* Mode A (Mode V/A) and an *inverting* Mode B (U/V) linear transponder. Telemetry beacons on 10 and 2 metres as well as on 70 cm rounded out the satellite's RF suite. Unfortunately, AO-7's 2304.1 MHz experimental beacon was never activated due to international frequency allocation issues.

Four antennas mounted at 90-degree intervals on the base and two experimental repeater systems provided store-and-forward capability for Morse and Teletype messages as it orbited around the world. The Mode-B transponder was designed and built by Professor Dr. Karl Meinzer, DJ4ZC and Werner Haas, DJ5KQ (SK).

The Mode B transponder was the first such transponder using Dr. Meinzer's "HELAPS" (High Efficient Linear Amplification by Parametric Synthesis) techniques – a technology that was painstakingly developed by Dr. Meinzer as part of his PhD dissertation. HELAPS was very effectively used on a number of AMSAT's subsequent satellites.

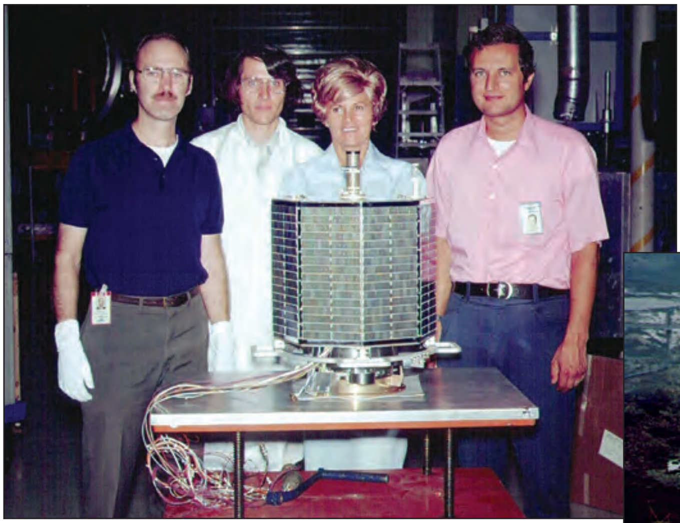
The two transponders were operated alternately by means of a timer arrangement, but transponder selection and output power control could also be accomplished by ground command. Each of the transponders included a keyed telemetry beacon at the upper edge of the downlink passband to provide housekeeping data as well as a reference marker to assist Amateurs in setting their uplink power level. The crossband design of the two transponders were one of the first such arrangements that permitted Amateurs to monitor their own downlink signals so as to help them compensate for changing path loss, transponder loading and Doppler shift.

THE LOST IS FOUND

AO-7 was operational for nearly seven years until a supposed battery failure caused it to cease operation in mid-1981. Then on June 21, 2002, Pat Gowen, G3IOR, stumbled onto something he noted as "remarkable" when hunting for what he

FREQUENCY AND MODE DATA

Satellite	Mode	Uplink (MHz)	Downlink (MHz)	Beacons (MHz)
AO-7	V/A (Mode A)	145.850 – 145.950	29.400 – 29.500	29.502
	U/V (Mode B)	432.125 – 432.175	145.975 – 145.925	435.100 – 145.975
Fox-1A	U/V (Mode B)	435.180	145.980	FM Voice



Members of the AO-7 project team pose with the final fruits of their labor. From left are Dick Daniels, W4PUJ (SK); Jan King, W3GEY; "hired hand" Marie Marr and AMSAT Founding President Perry Klein, W3PK. (Courtesy: AMSAT)

AO-7 was successfully launched on November 15, 1974 by a Delta 2310 launcher from Vandenberg Air Force Base near Lompoc, California (Courtesy: NASA)

called "interlopers" on our 2 metre Amateur satellite band.

During his search, he came across a beacon sending slow (8-10 wpm) Morse Code on 145.973 MHz that was also slowly drifting downward to 145.970 MHz before fading out completely.

The beacon sounded very familiar to him, but, clearly, it was coming from none of the (then) current satellite fleet. And because of the Doppler shift, the signals were obviously coming from a satellite. But which one?

The beacon peaked at S9 and at times it took on a rough quality, warbling in frequency, then coming back strong and quite stable again. To his surprise, Pat later learned that the satellite he had been listening to was none other than our old AO-7 that had somehow *come back to life!*

Jan King, W3GEY, the AO-7's original Project Manager later noted that the satellite had a very good set of solar panels and the first Battery Charge Regulator (BCR) AMSAT ever flew. It was also the first spacecraft AMSAT ever built that was capable of actually overcharging the battery. As expected, when the battery failed, one or more of the individual battery cells eventually failed "short".

However, what AO-7's experimenters *hadn't* counted on was what would happen if any one of the failed cells lost its "short" and the battery circuit became "open". Then, the entire power bus would become "unclamped" from ground and the all spacecraft loads (including the transponders) could then draw power from the highly efficient solar arrays. At that point, AO-7 might have enough solar power to become a "daytime only" satellite.

Indeed, this is *precisely* what has since happened and what has miraculously caused AO-7 to come back to life after so many years of being dormant. The only downside to this now "daytime only" satellite is that, every time sunlight hits the spacecraft and it powers up after exiting an eclipse, AO-7 comes up randomly in either Mode V/A (the oldd Mode A) or Mode U/V (the old Mode B).

CURRENT STATUS

Subsequent analysis has revealed that, even after over 40 years in orbit (and with the notable exception of the now "open" battery) AO-7 remains in surprisingly good shape. The solar arrays, the BCR, the Instrumentation Switching Regulator, along with the Mode B and Mode A transponders appear to all be working beautifully. What's more, the Morse Code telemetry encoder and voltage reference circuitry and other onboard electronics are all still providing useful data to AO-7's ground handlers. And what a testament AO-7 has since become for a satellite that was built (quite literally) by a group of "amateurs" in their basements and garages and launched into Earth orbit *over 40 years ago!*

40TH BIRTHDAY PARTY

Attendees at this year's AMSAT Annual Meeting and Space Symposium held just outside Baltimore, Maryland in early October 2014 were treated to a "behind the scenes look at how AO-7 was designed and built from its principal designer – none other than Jan King himself.

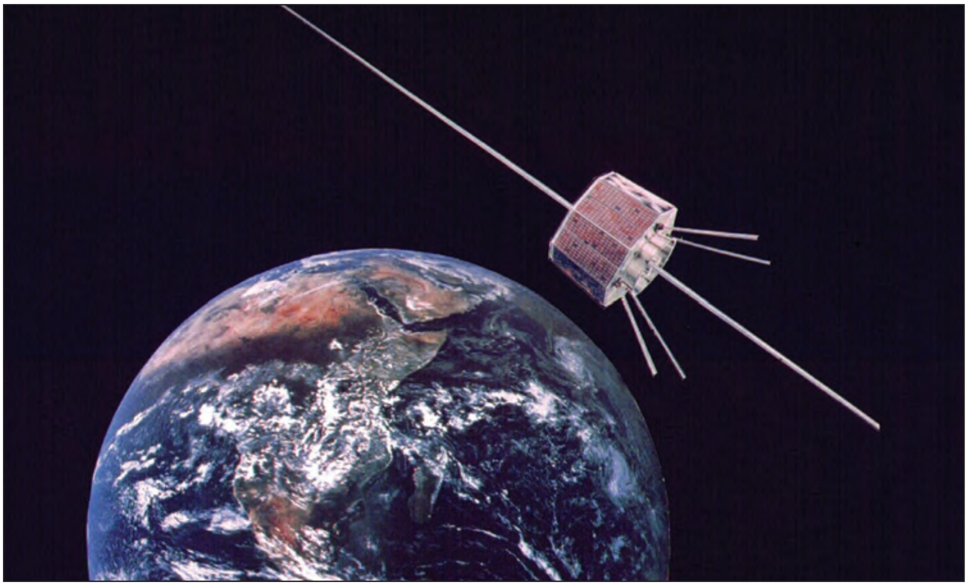
Jan was invited by AMSAT to be the keynote banquet speaker at the event and he took us all on a photo trip through the trials and tribulations that he and his multinational team endured to bring AO-7 to life. This included the story of building a final assembly satellite "clean room" out of plastic sheeting and stud lumber in the basement of his starter home in suburban Maryland.

Just after his speech (and as he cut the cake at AO-7's 40th birthday party at this year's event), Jan also shared a little known fact with the Symposium audience:

AO-7 has now become the oldest, still operational, Earth-orbiting satellite EVER launched – then or since.

This means that AMSAT's little AO-7 satellite and its "homemade" transponders (launched as one of the very first secondary payloads on a NASA rocket back in 1974) has now outlived *all* of the other satellites ever orbited by mankind – *including* the ones built and launched by the multi-gazillion dollar, "big boys" of the satellite industry.

To say that AO-7 has now become the "little satellite that could" would be the height of understatement! It's also a shining testament to the creative skill of Amateur Radio operators in general and, in particular, the so-called "amateur" satellite engineers of AMSAT.



An artist's concept of how AO-7 might appear in orbit today. (Courtesy: AMSAT)

WHEN AND WHERE TO LISTEN

Since it sprang back to life, AO-7 has once again become one of AMSAT's most popular linear (analog) satellites. Indeed, when AO-7 is in full sunlight, it provides surprisingly strong (albeit somewhat "chirpy") downlink signals – even using modest satellite antenna arrays.

However, as I've noted in previous columns, it takes a bit of patience to determine which mode the satellite is in when it first pops over the horizon. I do this by first setting my *downlink* frequency in the middle of either passband (at, say 29.450 MHz or 145.950 MHz) and then send a few widely-spaced CW "dits" on the uplink while tuning the frequency of my uplink signal around. Once I hear my own "dits" coming back to me on the downlink, I immediately know which mode the satellite is in, and I then start looking for a contact.

OTHER OPERATING TIPS

Because of its relatively high power (2 to 8 watt) downlink transmitters, you should be able to hear very weak signals from AO-7 without needing a lot of uplink power. Remember, this satellite was *never* intended to be an FM bird! Indeed, I've successfully worked through AO-7 with 5 watts or less to my eggbeater antennas. You may need to increase power if the satellite is at a distance, but be sure to reduce power as the satellite approaches.

Unfortunately, AO-7's mode B uplink is also in the middle of the informal, 70 cm, so-called "weak signal" terrestrial band that was established *after* AO-7 first went silent. Excessive uplink power may interfere with other services in that band, and may be considered by some to be a spurious, out-of-band emission.

In addition, if you hear your downlink signal start to rapidly change frequency (indicated by a "warbling" sound) this means you are putting too much power into the bird. Reduce your uplink power and the situation should correct itself. What's more, as the strongest signals are in the middle of the passband, you will therefore need less power to hear your downlink there. Remember, too, that, voice signals strain the power system on AO-7 the least. So, if you are using CW, please be extra vigilant about the amount of uplink power you are using.

Hopefully, with reasonable care from all of us, AO-7 has many years of "semi-operational" life still left in it. But, with satellites operating in the harsh thermal and vacuum of space, you never know.

AO-7 *could* go on operating for many more years. Or it could cease transmitting altogether tomorrow.

FOX-1A UPDATE

Besides an AO-7 history lesson, people attending this year's AMSAT Annual Meeting and Space Symposium near Baltimore, Maryland were also treated to a "hands on" demonstration of the full up and functioning engineering model of Fox-1A.

AMSAT-NA's Vice-President for Engineering (Jerry Buxton, N0JY) had the satellite's Mode U/V (Mode B) transponder activated at the event and attendees were invited to make a contact or two through the new bird.

Jerry also reported that FOX-1A's 600+ Mw transponder had also been operating from his home in the Dallas, Texas area using a modest external antenna with surprisingly clear and strong signals into and out of the satellite.

If all has gone as planned, the flight model of Fox-1A will have been finally "buttoned up" and turned over to NASA for launch as you read this.

At press time (mid-November 2014) Fox-1A's launch was tentatively slated for sometime in early-to-mid 2015 from Vandenberg AFB in California.

However, as Fox-1A is a "non-paying passenger" with a main payload customer, launch information for secondary payloads is always subject to change.

Stay tuned to the AMSAT website (http://www.amsat.org) for further updates on Fox-1A's (hopefully imminent) ride into space.

– continued on page 17

Fox-1A team member Burns Fisher, W2BF (at left) and AMSAT Vice-President of Field Operations Patrick Stoddard, WD9EWK (right) make a "contact" through the FOX-1A Engineering Model (on the table behind them) at the AMSAT Annual Meeting and Space Symposium held in early October 2014 near Baltimore, Maryland. (Courtesy: N0JY)

NOTICE TO RAC MEMBERS RESIDING IN THE ONTARIO NORTH/EAST AND ONTARIO SOUTH REGIONS

Call for Nominations of Candidates for Regional Director to serve on the Board of Directors of Radio Amateurs of Canada Inc.

The Secretary of Radio Amateurs of Canada Inc. hereby solicits nominations for the positions of Director for the Ontario North/East Region (postal codes K and P) and the Ontario South (postal codes L and M). This is the Third Notice for the Ontario North/East Region and the First Notice for the Ontario South Region.

If required, an election for this position will be held in March 2015. The Director will take office immediately to complete the two-year term ending December 31, 2016.

1. The Candidate:
    - ✓ must be a Full Voting Member of RAC
    - ✓ must have reached the legal age of majority
    - ✓ must reside in the Region for which he or she is nominated
2. A candidate may not nominate himself/herself.
3. The nomination form will:
    - ✓ be printed or typed
    - ✓ clearly indicate the candidate's name, call sign and RAC membership number
    - ✓ clearly indicate the names, call signs, RAC membership numbers and original signatures of ten (10) or more full voting members of RAC
4. The nominators must have reached the legal age of majority and must reside in the same Region as the candidate whom they are nominating.
5. Each candidate must:
    - ✓ sign the nomination form, indicating a willingness to be nominated
    - ✓ include with the nomination a brief biographical sketch/CV limited to 500 words succinctly setting out his/her background and qualifications. A candidate choosing to submit a biographical sketch in both English and French languages will be allowed 500 words in each language. The biographical sketch will not include any campaign platform material.
6. All **original nominations and supporting documentation, including the biographical sketch,** must be **received** by the Secretary of RAC at the address indicated on page 17 by 3 pm on Friday, March 15, 2015.

It is suggested (but not required) that the nomination forms be sent by registered mail.

Faxed or emailed documents will not be accepted.

AVIS AUX MEMBRES DE RAC RÉSIDANT DANS LA RÉGION DE L'ONTARIO DU NORD-EST ET DE LA RÉGION DE L'ONTARIO SUD

Appel de mises en candidature pour le poste de directeur de région siégeant au conseil de direction de Radio Amateurs du Canada inc.

Le secrétaire de Radio Amateurs du Canada inc. sollicite des candidatures pour le poste de directeur pour la région de l'Ontario du Nord-Est (codes postaux K et P) et la pour la région de l'Ontario Sud (codes postaux L et M). C'est le troisième avis pour la région de l'Ontario du Nord-Est et le premier avis pour la région de l'Ontario Sud.

S'il y a lieu, une élection à ce poste sera tenue en mars 2015. Le directeur entrera en fonction immédiatement pour compléter le mandat de deux ans se terminant le 31 décembre 2016.

1. Le candidat :
    - ✓ doit être membre en règle de RAC
    - ✓ doit avoir atteint l'âge légal de la majorité
    - ✓ doit résider dans la région pour laquelle il est mis en nomination
2. Un candidat ne peut se nominer lui-même.
3. Le formulaire de mise en nomination devra :
    - ✓ être dactylographiée ou imprimée
    - ✓ reproduire clairement le nom du candidat, son indicatif d'appel et son numéro de membre chez RAC
    - ✓ reproduire clairement le nom, l'indicatif d'appel, le numéro de membre RAC et les signatures originales d'au moins dix (10) membres en règle de RAC
4. Les présentateurs doivent avoir atteint l'âge légal de la majorité et demeurer dans la région du nominé.
5. Chaque candidat doit :
    - ✓ signer le formulaire de mise en nomination, indiquant son accord d'être mis en nomination
    - ✓ inclure avec la mise en nomination une courte note biographique/CV, limitée à 500 mots, décrivant succinctement ses antécédents et ses qualifications. Un candidat qui désire soumettre sa biographie en anglais et en français se verra alloué 500 mots dans chacune de ces langues. Les notes biographiques ne devront inclure aucun élément de la plate-forme électorale.
6. **Tous les documents originaux de mise en candidature et les documents reliés**, incluant la note biographique, devront être reçus par le secrétaire de RAC à l'adresse indiquée sur la page 17 avant 15h00 le vendredi 15 mars 2015.

Il est suggéré (mais pas obligatoire) que les documents de mise en candidature soient expédiés par courrier recommandé.

Les documents expédiés par courriel ou par télécopieur ne seront pas acceptés.

✓ Clearly indicate on the mailing envelope that Nomination Documents are enclosed.

✓ The envelope will be held unopened until after the closing deadline of March 20, 2015. After this date, the Election Committee, under the supervision of the RAC Secretary, will open all submissions, review the documentation for accuracy, completeness and validity, and then announce the results of the Call for Nominations. The decision of the Election Committee is final.

✓ Should a balloted election be required, ballots will be mailed from RAC Headquarters on or before March 27, 2015.

Nominations must be sent to the following address:

Secretary, Radio Amateurs of Canada
720 Belfast Road, Suite 217
Ottawa, ON K1G 0Z5

Clearly indicate on the envelope:
“Nomination Documents”.

✓ Indiquez clairement sur l’enveloppe qu’elle contient des formulaires de mise en candidature.

✓ L’enveloppe restera scellée, jusqu’après la fermeture des mises en candidature le 20 mars 2015. Après cette date, le comité électoral, sous la gouverne du secrétaire, ouvrira toutes les candidatures soumises, et vérifiera la documentation quant à sa validité, son exactitude et sa complétude, et annoncera ensuite le résultat de cet appel de mises en candidature. La décision du comité électoral sera finale.

✓ Si une élection était requise dans l’une des régions, les bulletins de vote seraient postés du quartier général de RAC le 27 mars 2015 ou avant.

Les mises en candidatures doivent être envoyées à l’adresse suivante :

Le secrétaire, Radio Amateurs du Canada
720 Chemin Belfast, Suite 217
Ottawa, ON, K1G 0Z5

Indiquer clairement sur l’enveloppe :
« Documents de mise en candidature ».

RAC ONLINE STORE

RAC Store visit: http://www.cafepress.ca/rac_radio

– AMATEUR RADIO SATELLITES, continued from page 15

Nerd Alert! Hams at the 2014 AMSAT-NA Annual Meeting and Space Symposium held in early October near Baltimore, Maryland are shown here talking to each other through AMSAT-United Kingdom’s AO-73 satellite (orbiting at 600 km above the Earth). The handheld antennas (commercially made from aluminum arrow shafts) allow for such contacts using just a few watts of uplink power from a handheld radio. All agreed that communicating to each other this way was a heck of a lot more fun than using their cellphones! (Courtesy: Keith Baker, VA3KSF/KB1SF)

FOX-1C FUNDRAISING

As I reported to you in my last TCA column, in late July at the ARRL Centennial gathering in Hartford, Connecticut AMSAT-North America’s (AMSAT-NA) President (Barry Baines, WD4ASW) announced a launch opportunity for AMSAT-NA’s Fox-1C Cubesat. AMSAT has teamed with Spaceflight Incorporated for integration and launch of the satellite using Spaceflight’s SHERPA system into sun-synchronous orbit in the third quarter of 2015.

Needless to say, this new launch opportunity also generated an immediate need to raise funds to cover both the launch contract and *additional* materials for construction and testing for Fox-1C. AMSAT has since set an additional fundraising goal of $125,000 to cover these expenses over the next 12 months.

As part of that fundraising effort, AMSAT-NA has developed a unique “Challenge Coin” in the shape of the Fox satellite that is available as a perk for a donation of $100 or more to the project. At press time, a portion of this $125,000 fundraising campaign (spearheaded by AMSAT-NA’s Vice President for Operations Drew Glassbrenner, KO4MA) was being conducted on the Fundrazr website (https://fundrazr.com/campaigns/6pz92) as well as by AMSAT’s other traditional fund-raising mechanisms. As always, more information about the entire AMSAT Fox satellite project can be found on the AMSAT-NA website at: http://www.amsat.org/?page_id=1113.

**Photo: Jan King, W3GEY, AO-7s Project Manager addresses the 2014 AMSAT-NA Annual Meeting and Space Symposium banquet attendees.
(Courtesy: Keith Baker, VA3KSF/KB1SF)**

THE MANITOBA REPEATER SOCIETY

The Manitoba Repeater Society Inc. (MRS) is a non-profit organization. Its objective is to promote Amateur Radio through FM communications on VHF and UHF frequencies. MRS maintains an extensive linking repeater system throughout Southern Manitoba. The system covers from Neepawa in the west to Milner Ridge in the east and Gimli in the north to Morris in the south. By offering mutual linking arrangements to other systems such as Brandon Amateur Radio Club (BARC), the Triple S Group (VE4SSS) and the Lake of the Woods Amateur Radio Society's Pine Tree system, our range is extended from Brandon in the west to Dryden, Ontario in the east and further, northwest to Russell then north to The Pas, as well as into the Interlake Region. For more information visit: http://www.mb-repeater-society.ca/

Derek Hay, VE4HAY

TO JOIN OR NOT TO JOIN

A fellow ham passed along the following message after an "on-air" conversation by some locals was overheard complaining about and not wanting to pay memberships and wanting "something for nothing". While I did not hear the original conversation, I have heard it before by other Amateur Radio operators over the years. It basically boils down to this. For some reason Amateur Radio operators want a perfect working, high capacity, long-range repeater system, with redundant backup radios and networks. And they are willing to pay for that service. But, and here is the kicker, they are only willing to pay $20 to $25 a year. For a networks of 10 sites with an average of 3.2 radios per site. Oh and did I mention that this network is interconnected to a number of other networks, run by other groups, which extends the entire network across Southern Manitoba and well into Northwestern Ontario.

WHO WE ARE

Perhaps some explanation needs to be put forward about our little repeater system. Let's start with the people who are maintaining this system. They are all volunteers and not paid employees. They have families, work and other activities other than Amateur Radio. They take whatever slice of time they can afford to give up to repair (at home) and then travel to remote sites up to two hours away in any given direction, to install and field repair equipment in most times outdoor locations, in the weather that mother nature provides. Now remember we are in Manitoba and not the US Central Midwest, or the centre of Canada (Toronto?). It gets cold here, darn cold. And when it is not cold, it is ridden with mosquitoes, wasps, black flies, ticks etc.

NOW LET'S GO TO THE EQUIPMENT

The commercial companies are installing the latest and greatest equipment all the time. Why are they replacing their equipment? Well, mostly for reliability and a little for the latest bells and whistles. Have you ever wondered where their old equipment goes? The resale market – as in they sell what they can for whatever they can get for it. Eventually, it starts to enter the Amateur Radio world but, this is many years down the road, after it has been resold or repurposed many, many times. Why you may ask does it take so long to get into Amateur hands? Cost is the main reason. Just keep that in mind as we will come back to that.

Licensed Before 1990?

QCWA invites you to join with those distinguished Amateurs licensed 25 years ago and licensed today.

To join or renew with QCWA visit:

http://www.qcwa.org/join-renew.php

For more information please contact QCWA at: **execadmin@qcwa.org**

QCWA QUARTER CENTURY WIRELESS ASSN., INC.

HOW ABOUT THE SITES?

The sites are not chosen for their uniqueness. They are chosen because we feel that they are in the intended coverage area, and somehow we have arranged for very low cost access or even free gifted access, in exchange for providing a community service or through business or personal connections with the host site provider. Most, 99.9% of commercial tower space has a price tag on it. Business is business and if money can be made selling tower access space, it will happen and it can demand very high or top dollar rates.

How about antenna placement or what is effectively climbing the towers?

We used to be able to climb these towers ourselves and install antennas and transmission cable. Not anymore, as every host site now requires only experienced and certified climbers who carry insurance. These climbers are always associated with a tower company and thus require fees to be paid for their service. We try to piggy-back on a service call that may happen at a site as best we can but there is no guarantee on that happening. We hold off as long as we can, but it sometimes takes a priority and we have to hire a climbing crew. Yes a crew, as they do not work alone. Oh and don't forget travel time, in both directions.

NOW LET'S GET INTO THE FINANCES OF THE GROUP

While we have money in the bank, if you look at our budget for the last 10 years, you will see that most of the time the budget is a defect budget. We plan on *losing* money.

This type of budget is not sustainable; eventually the money in the bank will run out.

How can we produce a budget which is a break-even or even a profit?

Well, we would first have to cut expenses. So how do we do that?

We could stop paying climbers to go and fix antennas.

Or we could put some more glue on those outdated radios we are using that are constantly breaking down and the commercial guys abandoned many years ago.

We already volunteer our time and labour to repair, fix replace and maintain, plus our mileage, gas and wear and tear to travel to the sites, so there is no savings there.

We already purchase and donate to the cause our own test equipment to effect repairs. Where else can we save money? Really there is nowhere else. So how can we balance the books? It must come from the revenue side, the side that brings in the money.

How does this money come in?

It comes from your membership.

Remember that measly little $20 to $25 per year you pay to be a member. But there is not enough of it. So the only choice is to either raise fees or gain more members. For the most part our tried and true members understand that costs have gone up over the years. Equipment breaks down and needs to be replaced. Tower crews need to be paid for services performed. So a slight increase in membership will be tolerated. There will always be some members who say they cannot afford a $5 a year increase. As they want to buy that new HF/VHF/UHF rig with all the bells and whistles.

So paying $5 more a year, heavens no.

And how about those that linger on the side. Those who use the radio system to check into nets, to ragchew, to assist with parades, or community events, and even step forward in an emergency. Those who go for a drive or just stay home and stay in touch with their fellow hams for company and someone to talk to. Those who – as the opening paragraph says – are overheard complaining about and not wanting to pay memberships and wanting "something for nothing".

SIMPLEX

Perhaps we should let them try simplex for a week and see how they like it. Yes we all remember simplex. Many of the older guys around can swear that is how we used to communicate. Back when cities and housing developments let people put up towers so they could get a signal across the city. Back when handhelds were the size of a brick and not something that is, well, so small that you cannot push a button on it without hitting two other buttons at the same time.

Yes, perhaps we can urge everyone to move over to simplex. Yes, I'm sure that would work, we will all comply and everything will be just grand.

– continued on page 23

All Things Digital

Amateur Radio for the 21st Century

016

Robert C. Mazur, VA3ROM
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W: www.va3rom.com

THE ARDUINO MCU: PART DUO

***Note:** Part Uno appeared in the November-December 2014 issue of TCA. The project concepts, information and procedures are from the RadioShack Sun and Sky (S & S) Monitoring Station kit designed by Forrest Mims III (see Figure 1). Forrest was kind enough to answer my questions as was his cohort Dr. David Brooks, PhD.*

THE PROBLEM WITH PROJECT UNO

Astute readers probably noticed a problem with the green LED radiometer's measurements of sunlight. The no-load (non-proportional) voltage settled at a constant level and varied very little unless clouds moved across the sun, and what was actually being indicated was the percentage of green light spectrum but without also measuring the red and blue spectra for comparison, we can't quantify the value.

When LEDs are used as light sensors, they produce a miniscule "leakage" current directly proportional to the intensity the light but it flows in the opposite direction of "normal" current.

We need the current to go through a load resistor (e.g. 220-470 ohms) so we can measure the voltage and/or power produced ($E \infty IR$ and $P \infty I^2R$) to compare against atmospheric values defined in terms of volts and watts, but any load put across LED sensors sometimes produces very, very small voltages that the Uno simply can't measure with its 10-bit ADC (analog-to-digital conversion).

COLOUR TO DIGITAL LIGHT SENSOR MODULES

Fortunately, many MCU companies have developed inexpensive, software controlled, self-contained SMT (surface mount technology) RGBC (red, green, blue and clear [white or all-spectrum]) colour to digital light, 16-bit ADC sensor boards allowing allow us to detect, measure and analyze *any* light source (sun, moon, planets, stars, LEDs, CF bulbs, etc.). And this is all possible because visible [white] light is composed of only red, green and blue!

Adafruit makes a really neat module built around the AMS (formerly TAOS) TCS34725 RGBC chip with IR-blocking filter so it "sees" light just like we and digital cameras do, plus the board has built-in IIC (inter-integrated circuit) support so we only need two analog pins to transfer data from the four LED's (see Figure 2). The support code library does all the work to control the sensor, break up light into its component RGB values, calculate the proportional voltages, CCT (correlated colour temperature) and photometric lux [light] level from which we can calculate other things like the approximate radiometric insolation.

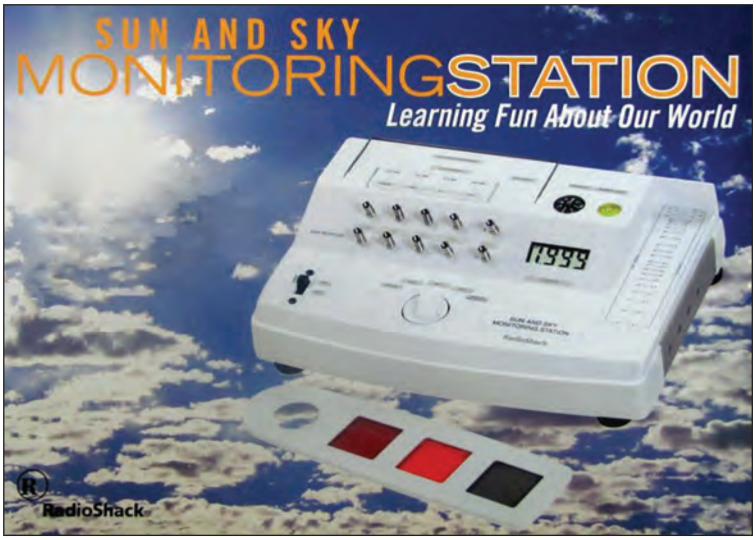


Figure 1: RadioShack Sun and Sky Monitoring Kit. This electronics kit uses 4-LEDs to conduct various experiments, and measure atmospheric aerosols and water vapour.

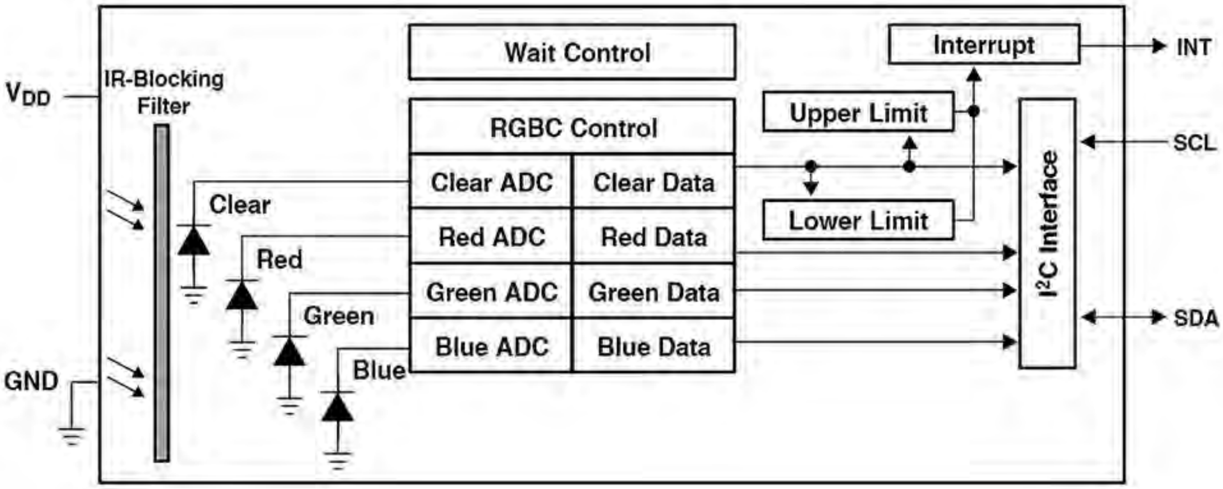


Figure 2: TCS34725 Sensor Schematic

INSOLATION: THE NOT SO CONSTANT, SOLAR CONSTANT

Insolation (Latin: insolare "to expose to the sun") is the visible light energy (irradiance) the earth receives from the sun. In just one hour, the earth absorbs more free solar energy than all the world's other energy resources combined can produce in one year!

Insolation isn't quite a constant "constant" because there are seasonal and north/south hemisphere variations caused by the earth's elliptical orbit and axis tilt, plus recent satellite data indicate insolation is affected slightly by the solar cycle and its cyclic variations of 11, 88, 208 and 1000 years (the solar cycle seems to be entering a slowdown possibly mimicking the Dalton Minimum [1790-1830]).

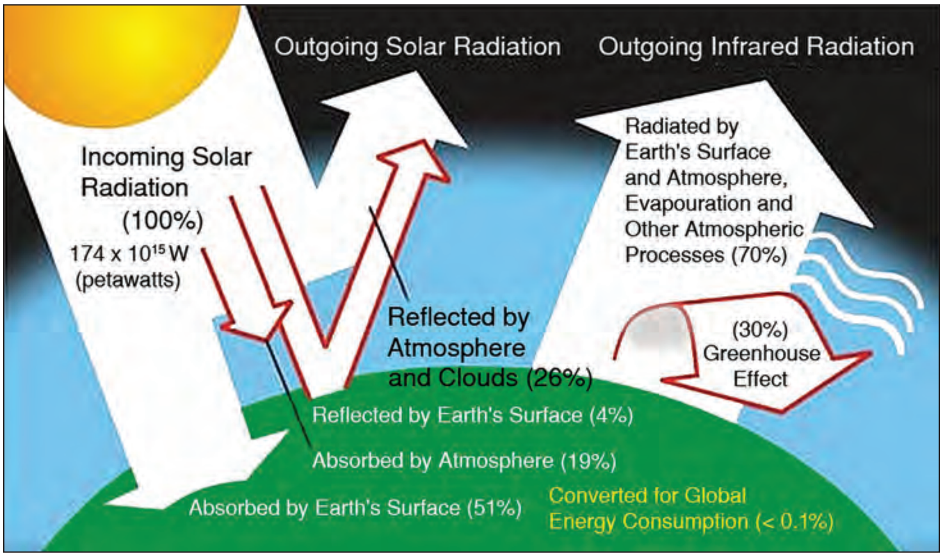
The solar [insolation] constant is defined at the top of the atmosphere as having a mean value of 1366 W/m^2 (watts per square metres). On the equator, using a standard atmospheric model and clear sky at solar noon, the mean surface insolation is 1000 W/m^2 measured perpendicular to the surface (the sun is directly overhead or at 90 degrees elevation), but as you move farther north/south of the equator, the surface insolation decreases because the sun doesn't as high above the horizon.

Note: Solar noon is when the sun reaches its highest point in the sky and not local (by the clock) noon.

Amazingly (see Figure 3), all of the sun's incoming daytime insolation (most absorbed and some reflected) is balanced out by the earth emitting the absorbed energy as IR radiation at night (radiation cooling) with about a third reflected back by the "greenhouse" effect (the average surface temperature would be about minus 18 degrees Celsius without it!).

Insolation is a very good number to know for anyone who uses/designs solar panel main/backup electrical power systems and especially if used for EmComm (emergency communications).

Natural Resources Canada produces PV (photovoltaic) potential and solar resource maps with instructions on how to properly adjust/position solar panels to maximize conversion of insolation to electrical energy.



Outgoing Solar Radiation
Outgoing Infrared Radiation
Incoming Solar Radiation (100%)
174 x 10^{15} W (petawatts)
Radiated by Earth's Surface and Atmosphere, Evapouration and Other Atmospheric Processes (70%)
Reflected by Atmosphere and Clouds (26%)
(30%) Greenhouse Effect
Reflected by Earth's Surface (4%)
Absorbed by Atmosphere (19%)
Absorbed by Earth's Surface (51%)
Converted for Global Energy Consumption (< 0.1%)

Figure 3: Insolation and Global Energy Balance. The earth absorbs daytime insolation and releases it at night as IR radiation with some energy reflected back else the earth would be a frozen ice ball!

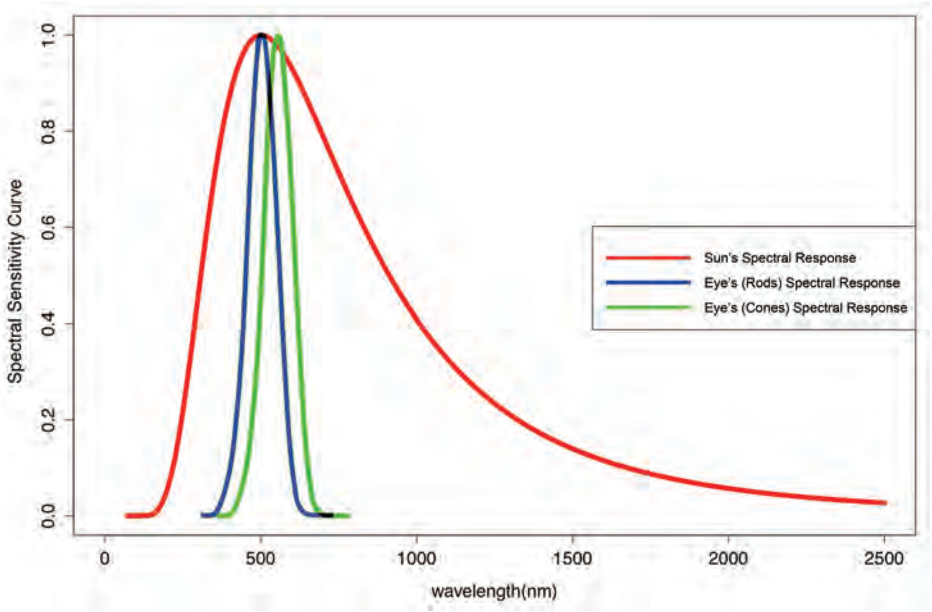
THE IMPORTANCE OF BEING EARNEST ABOUT COLOUR

The sun's visible light spectrum shaped the human eye's evolution (see Figure 4) and its rods and cones are more sensitive to blue and green but less sensitive to red, which explains why red light doesn't affect our night adapted eyesight and why we don't have IR vision, but we can and do use IR-based devices for short range remote control, optical communication, heating/cooking, non-contact thermometers, weapon systems and search and rescue (looking for/tracking heat signatures), etc.

Our eyes are susceptible to the "blue light hazard" (photochemical oxidation), the same process which darkens my Transition eyeglasses outdoors (even when cloudy). Reflective surfaces like snow, water, ice and white sand are even more problematic because they reflect light at all angles at us and can nearly *double* UV and blue light intensity! The retinas have no pain receptors to let us know "Enough already!" and over-exposure can easily go unnoticed until sun and/or flash burn occur.

Flora (plants, flowers, trees, et al) and oceanic algae use the greenhouse gas carbon dioxide, water and light (mainly blue and red spectra) for photosynthesis (conversion of light to chemical energy), producing and releasing oxygen into the atmosphere, and in just the right percentage for air breathers like us!

Figure 4: Solar/Visual Spectral Response Curves



PROJECT DUO

This combination radio/photometer gadget (see Figure 5) breaks down *any* light source into the primary colours and produces proportional RGB voltages from which we can calculate colour percentages, CCT, wavelength, lux and approximate insolation (see Figure 6).

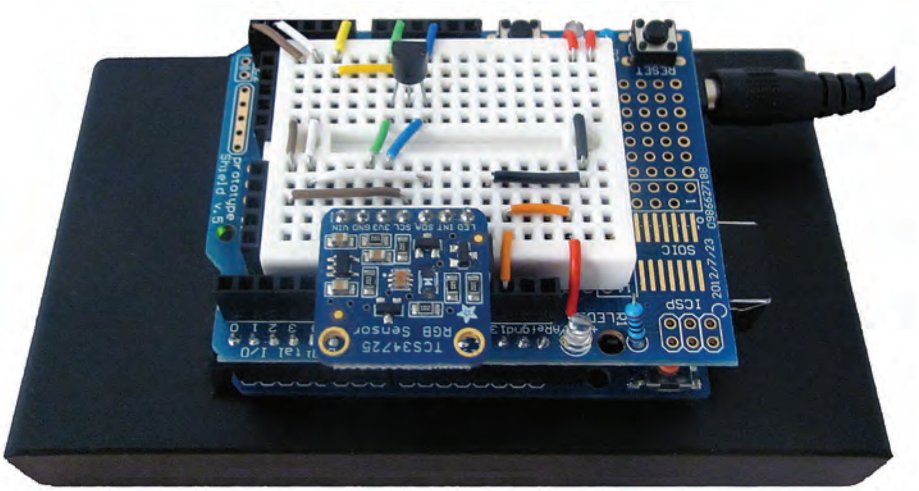


Figure 5: Project Duo Gadget with Battery Pack. This simple, stand-alone Arduino gadget monitors/records ambient light/sunlight levels and temperatures every 10 minutes. The data (maximum 127 records) are stored in EEPROM for later extracting and analyzing.

Clouds, fog, precipitation, haze, smoke, smog, terrain, trees, buildings, time of day/year and latitude all affect the sunlight reaching our sensor, and recording weather and sunlight data over days, weeks, months and years builds a profile you can use to detect any dramatic atmospheric and/or climatic changes in your area.

An external TMP36 analog ambient air temperature sensor (optional) is added because temperature swings can affect LED voltage output so knowing this makes later compensation correction easier. At certain times of the day, there are very interesting and distinctive temperature “signatures” and spectral shifts worth noting.

The Uno’s MCU internal 1024-byte EEPROM (electrically erasable programmable read-only-memory) is used as a simple data-logger so we can disconnect our computer and put the gadget (with battery pack) in a convenient location where it can silently sit and do its job collecting data which is later extracted and imported into a spreadsheet for analysis.

PARTS LIST

1) Arduino Uno (USB B cable, computer and programming software).

2) Arduino prototyping shield with solderless mini-breadboard and assorted #22 wires/jumpers.

3) Adafruit TCS34725 RGBC colour to digital light sensor board.

4) TMP36 analog temperature sensor (optional).

5) Project Duo sketches and logging spreadsheet (from my website).

The circuit is very easy to build on an Arduino prototyping shield (daughterboard) that mounts on top of the Uno board

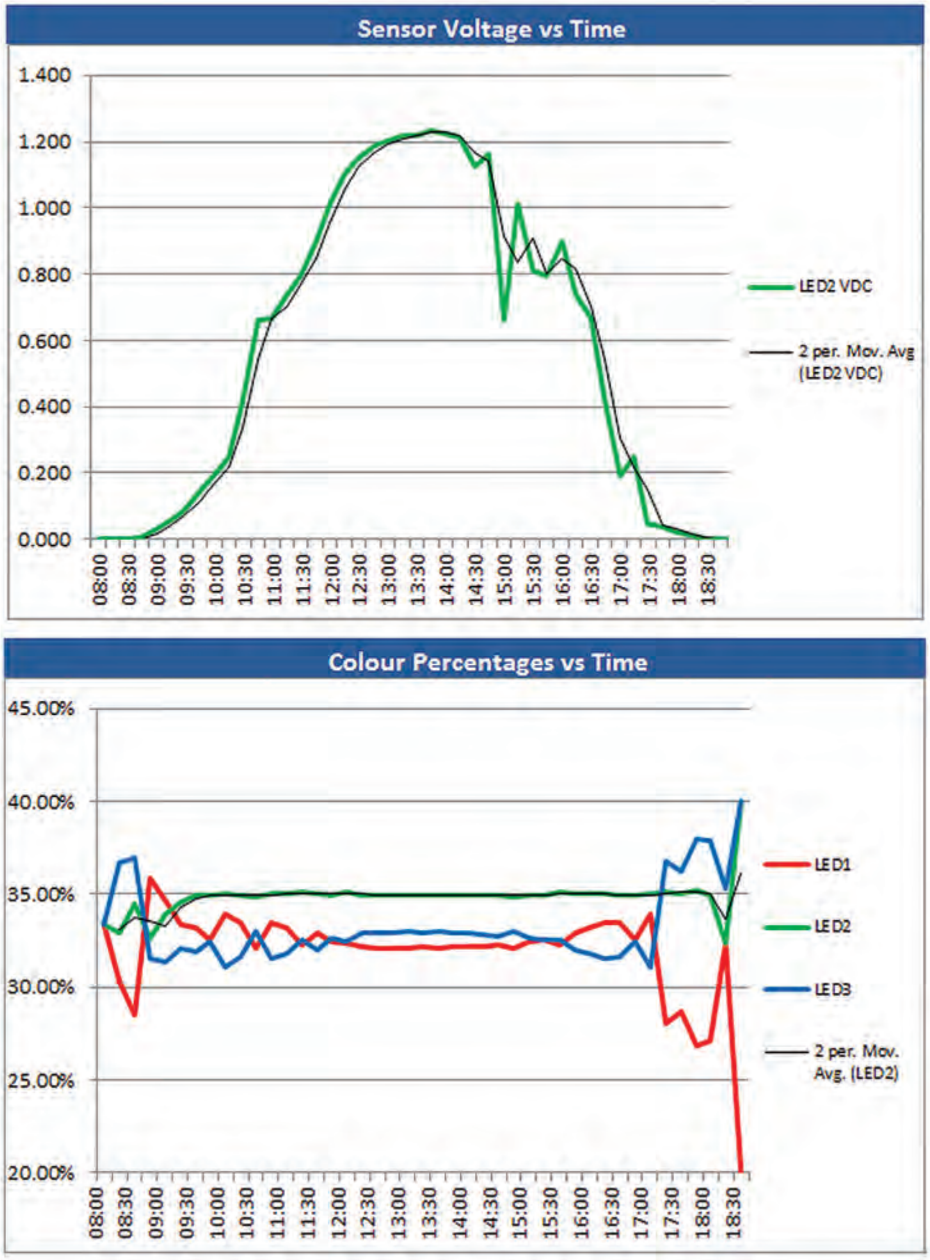


Figure 6: Some Sensor Results. The sun’s green light spectrum graph (top) showing the produced proportional DC voltage as it rises/falls as insolation increases/decreases for various reasons. The bottom graph displays the RGB percentages with the green light spectrum (average lighting conditions) remaining fairly constant as the red and blue light spectra (mirror images of each other) varied with cloud type, thickness and altitude.

which supplies power and control. Once everything's working properly, you can remove the breadboard and build/solder the circuit directly onto the shield's copper PCB (printed circuit board) area using whatever construction style you prefer (point-to-point, Manhattan, ugly [dead] bug, et al).

The gadget is used indoors in the same way as the Project Uno gadget; for outdoor use, you'll need a weatherproof, clear container (plus diffuser) with some kind of level mounting attachment to secure it to a post and keep it in consistent sunlight conditions during daylight hours (as is practicable).

Note: Detailed construction, schematic and operating instructions, plus additional information and support documents are available on my website.

MY FINAL

For Hams "into" meteorology and/or climatology, the use of simple LED-based atmospheric measuring devices can enhance your knowledge and enjoyment, plus contribute useful data for others. With such tools, Mr. Mims and Dr. Brooks have made and published many atmospheric discoveries.

In my next column we'll build a simple Arduino Uno DCR (direct conversion receiver) whose output is processed by software to decode various digital data modes. – 73

REFERENCES AND RESOURCES

Adafruit
https://www.adafruit.com

All Things Digital
http://tinyurl.com/og2acxq

Arduino
http://arduino.cc

Atmospheric and Solar Data
http://www.gaisma.com/en
http://tinyurl.com/23lrl8c

David Brooks, PhD
http://www.instesre.org

Forrest Mims III
http://tinyurl.com/3woj7t4
http://tinyurl.com/nvulko5

Introduction to Arduino
http://tinyurl.com/nfz5ogl

My NASA Data
http://tinyurl.com/mxfohjp

Natural Resources Canada
http://tinyurl.com/kjxcwpq

The Manitoba Repeater Society, continued from page 19

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WHERE AM I GOING WITH THIS ARTICLE AND WHAT IS MY POINT?

Two Manitoba Repeater Society crew members and one apprentice/organizer just spent Grey Cup Sunday traveling in extreme cold warnings with –33 windchill for two hours – before the real winter hits – to replace a power supply on a remote linked repeater, then another hour-and-a-half to another site to replace a failed duplexer and radio, and finally another half-hour to check on another linked repeater (see page 52 for more information).

All before finally arriving home, just in time to see the kickoff.

This trip, like the 20+ other trips made in 2014 to various repeater sites, was done for the love of the hobby and to try to ensure that you, as member and even those as non-members, have a linked repeater system that functions as best as we can maintain it.

So you can have that all important ragchew as you drive across Manitoba, or as you exchange pleasantries with your fellow ham, or as you volunteer for the parade, marathon or assist in an ARES function.

Have you ever heard anyone from the Executive of the Manitoba Repeater Society complain about the system? So when we hear fellow Amateur Radio operators complain about a system that you do not pay for and use, well it sort of ticks us off a bit.

As for those who are members, we thank you, but please endure with us as we do our best to keep your membership fees low and still manage to maintain a link repeater system that at last count is 10 sites with 32 radios, 26 antennas, over 100 cavities as part of the filters, thousands of feet of transmission cable, dozens of power supplies. And an enormous tube of glue to hold it all together.

To see what it is that the Executive of the Manitoba Repeater Society does, please check our Facebook page and look at our photo albums of each repeater site. You can also check out our website at http://www.mb-repeater-society.ca/

Derek Hay has been certified as an Amateur Radio operator since December 1990. Operating with the call signs of VE4HAY and VA4HAY, Derek served as President of the Manitoba Repeater Society from 1992 to 1994 and then again from 1999 to 2001.

A member of Winnipeg ARES, Derek was appointed Section Manager for Manitoba in 2000 and served in that position until 2004, at which time he was appointed as RAC's Midwest Assistant Regional Director. In 2009, Derek was appointed as RAC's Midwest Regional Director and he has served as the Chairperson of RAC's Administration and Finance committee from 2011 to present 2011, where he worked with the rest of the committee to help turn RAC around financially.

DEVELOPMENT OF RADIO REGULATIONS FOR THE RADIO AMATEUR SERVICE IN CANADA
DE LA MISE EN PLACE D'UNE RÉGLEMENTATION CONCERNANT LE SERVICE DE RADIO AMATEUR AU CANADA

Larry L. Reid, VE7LR (SK)

It is a matter of speculation when the first Amateur station was established in Canada. The earliest one I have heard of was in 1904, when a Vancouver high school teacher claimed to have demonstrated to his students an operating station with a coherer receiver and spark transmitter. Undoubtedly there were others elsewhere in the country at or before this time.

In those early days, regulations governing the use of "wireless" were non-existent and individuals set up stations at their discretion. When the first Wireless Act of Canada was passed in 1905, no mention was made of Amateur stations. Even the governing body of the day, the Department of Marine and Fisheries, seemed to ignore Amateur station existence.

The first official reference to Amateur operations that I have been able to find was a report to C.P. Edwards, Dominion Superintendent of Wireless, dated November 25, 1910, prepared by E.J. Haughton, Pacific Coast Superintendent of Wireless, regarding interference to marine shipping wireless operations in the Vancouver area by Amateur stations.

Apparently this came to a head when the *D.G.S. Quadra* ran into difficulties while towing a disabled ship in a gale and her calls for tug boat assistance were unheard by the government coast station at Point Grey because of interference from Amateur stations.

Haughton met with the four Amateurs concerned and obtained their agreement to curtail operations when requested to do so by the Point Grey Station. His report further stressed the need for some regulatory control over Amateur operations and expressed concern that the fad was spreading.

Again, in 1912, Haughton had to solicit similar assistance from the Amateur stations in Victoria who were interfering with the Gonzales Hill coast station. Two of these hams, Bruce Restall and Sid Elliott later joined with the Pacific Coast Wireless Service in which both spent the next 40 years.

In discussions with Sid Elliott in later years about his early ham activities, he revealed that they used their initials for call signs and, as their coverage was severely limited with their crude equipment, they broke the monotony of talking to each other by working the odd passing ship. Their DX, when propagation was good, was to work a ham across the Straits in Port Angeles, Washington, 18 miles away.

In 1913 a new Radio Act was enacted which, for the first time, included "Regulations to Govern the Operation of Amateur Stations". These regulations limited the power input to the spark transformer to a maximum of 1/2 kilowatt; made provision for the issuance of call signs which commenced with the letter "X" followed by two or more letters, e.g., XAA, XAB, etc.; required that every precaution be taken to prevent interference to the working of other stations; and finally, required Amateurs, when operating, to listen for the signal "STP" which, when sent by a government station or a commercial station, required Amateurs to cease all operations until the issuing station sent cancel "STP". These regulations made no provision for the certification of Amateur operators or for the licensing of their stations.

It would appear that Amateurs applied to Ottawa for a call sign, and while some obtained call signs in this manner, many never bothered and continued making up their own calls.

With the coming of World War I, Amateurs were ordered off the air but, as Radio Inspectors had yet to be appointed and government services were stretched pretty thin, many Amateurs continued to operate knowing the chances of their detection was unlikely, particularly in the more rural areas.

Traduction Laval D. Nov. 2005

Il y a matière à spéculation à savoir quand la première station de radio amateur a été installée au Canada. La première dont j'ai entendu parlé serait en 1904, lorsque un professeur d'une école secondaire de Vancouver affirma avoir fait la démonstration à ses étudiants d'une station opérationnelle composée d'un récepteur cohéreur et d'un émetteur à étincelles. Sans doute qu'il y en a eu d'autres ailleurs dans le pays dans ce temps là ou avant.

En ces temps anciens, il n'y avait pas de règlement concernant l'utilisation du sans-fil et les individus s'installaient comme ils voulaient. Lorsque le premier Acte de la télégraphie sans fil fut promulgué en 1905, on n'y retrouvait aucune mention de la radio amateur. Même que l'organisation responsable à ce moment, le Ministère de la Marine et des Pêcheries semblait ignorer l'existence de station radio amateur.

La première référence officielle à l'exploitation d'Amateur que j'ai pu retrouvée est dans un rapport adressé à C.P. Edwards, super-intendant du Sans-fil pour le Dominion et daté du 25 novembre 1910, préparé par E. J. Haughton, super-intendant du sans-fil pour la Côte du Pacifique. Il y était question d'un brouillage aux opérations sans-fil maritimes dans la région de Vancouver par des stations amateur.

Il semble qu'on s'en soit réellement occupé quand le *DGS Quadra* (un navire du gouvernement) eut des difficultés lors du touage d'un navire désemparé pendant une tempête. Ses appels pour obtenir l'aide d'un remorqueur n'auraient pas été entendus par la station côtière de Pointe Grey à cause d'un brouillage causé par des stations radio amateur.

Haughton rencontra les 4 Amateurs en cause et obtint leur accord à ce qu'ils restreignent leurs émissions lorsque Pointe-Grey leur demanderait. Son rapport appuya le besoin d'un réglementation quelconque concernant l'exploitation de station radio amateur et émis l'opinion que ce 'caprice' (la radio amateur) se répandait.

Encore en 1912, Haughton eut à demander assistance des stations amateur à Victoria lesquels brouillaient la station côtière de Gonzales Hill. Deux de ces amateurs, Bruce Restall et Sid Elliott ont plus tard fait partie du Service sans-fil de la Côte du Pacifique, où ils ont oeuvré pendant 40 ans.

Des années plus tard, lors d'entretiens avec Sid Elliott à propos de ses jeunes années en radio amateur, il m'a révélé qu'ils utilisaient leurs initiales comme indicatif d'appel. Leur équipement ne leur permettant qu'une couverture radio passablement limitée, il brisait donc la monotonie de jaser ensemble en communiquant avec un ou l'autre des navires passant près. Leur DX, (communications à longue distance) avec une bonne propagation, était de rejoindre une station radio amateur située de l'autre coté du détroit de Port Angeles, Washington, 18 milles plus loin.

En 1913, une nouvelle Loi sur la Radio fut promulguée et, pour la première fois, on y trouva des 'Règlements concernant l'exploitation de stations amateur'. Ceux là limitait la puissance à l'entrée de l'émetteur à étincelles à un maximum de 1/2 kilowatt; prévoyait pour l'émission d'indicatif d'appel commençant par la lettre "X" suivi de deux lettres ou plus, ex: XAA, XAB, etc; stipulait que toute précaution devait être prise pour prévenir le brouillage à l'exploitation d'autres stations et finalement, obligeait les amateurs exploitant leur station à cesser immédiatement leurs opérations lorsqu'ils entendraient le signal "STP" transmis par une station du gouvernement ou une station commerciale jusqu'à ce que cette même station transmette

Finally, in 1920, the first Radio Inspectors were appointed and new Radio Regulations were promulgated which included special regulations for Amateurs. These included special operator certification by the examination licensing of Amateur stations, and limitation of the lowest wavelength permitted which varied depending upon the distance from the nearest commercial station. This was to be specified on the station aerial.

The new regulations also divided the country into five call sign areas with provision for each station to be issued with a distinctive call sign commencing with their area figure and followed by two or more letters, e.g., 3AA, 5BB, etc. It was to be a few more years before prefixes were assigned. It was also specified that the station call sign was to be sent at least three times at the termination of each transmission. Annual licence fees were $1, and there was no charge for the examination.

By today's standards the examination was very simple, with a 5 wpm code exam, an oral exam on the adjustment and operation of a receiver and spark transmitter, knowledge of Departmental regulations governing Amateur stations, some knowledge of the station operating regulations made under the International Radiotelegraph Convention, London, 1912 and the ability to distinguish from other signals the signals "SOS", "STP", etc.

The first examinations were held in Sault Ste. Marie on July 29, 1920 with certificate numbers 1, 2 and 3 being issued. It is interesting to note that, by the end of 1921, a total of 63 certificates had been issued and, of these, 57 were to Amateurs in the four western provinces. It is not suggested that there were more Amateurs out west, just that more of them became legal during the period and that Walter Howard, the newly appointed Radio Inspector for all of Western Canada, was busy trying to legalize radio station operations within his area of jurisdiction. The records show he spent the major portion of his time during this period conducting inspections and examinations with the latter including commercial, Amateur and experimental operating certification exams at Victoria, Vancouver, Prince Rupert, Calgary, Edmonton, Regina and Winnipeg.

In 1922, the regulations were amended to permit the choice of examination on spark or CW transmitters or on both. The first CW examination was held at Chatham, Ontario on May 15, 1922 and resulted in the issuance of certificate number 67. While a number of exams continued to be given on spark equipment, more were selecting both the spark and CW option and, by late 1923, selection of CW only became the most popular option.

The last pure spark examination was held at Brandon, Manitoba on March 21, 1924 resulting in the issuing of certificate number 402. The last combination spark/CW exam was held in Calgary, Alberta on September 29, 1925, and resulted in issuing of certificate number 572. Thus, spark disappeared from both the Amateur and experimental operator examinations, but did continue for many more years on the commercial operator exam syllabus.

Note: *this article appeared in a previous issue of TCA and is being reprinted so that current TCA readers can also enjoy it. Sadly, its author Larry Reid, VE7LR, became a Silent Key in January 2007.*

"Cancel STP". Cette Loi ne prévoyait pas d'examen pour la certification des opérateurs ni pour la licence.

Il semble que les Amateurs demandaient des indicatifs d'appel à Ottawa. Alors que quelques-uns en obtinrent de cette manière, plusieurs ne le firent pas et continuèrent à décider eux-mêmes de leur propre indicatif.

Au début de la Première guerre, on ordonna aux amateurs de cesser leurs émissions mais comme il n'y avait pas d'Inspecteur radio et que les services gouvernementaux étaient étirés à la limite, plusieurs amateur continuèrent s à opérer sachant fort bien qu'il y avait peu de chance d'être détecté, surtout dans les régions rurales.

Finalement, en 1920, les premiers Inspecteurs radio furent nommés et de nouveaux Règlements sur la radio mis en place lesquels prévoyaient un réglementation spéciale pour la radio amateur. On y trouvait une certification spéciale au moyen d'un examen d'installation amateur, une limitation quant à la plus basse longueur d'onde permise qui elle variait selon la proximité de cette installation par rapport aux installations commerciales en service. Cela devait être stipulé sur l'antenne de la station.

Le nouveau règlement prévoyait également une division du pays en 5 régions/indicatif d'appel et l'assignation d'un indicatif particulier pour chaque station, formé du code régional suivi de deux ou plusieurs lettres, par exemple 3AA, 5BB, etc. Il fallu attendre quelques années encore avant que des préfixes d'indicatif d'appel soient institués. On y spécifiait également que l'indicatif devait être transmis au moins trois fois à la fin de chaque transmission. Le droit de licence était de $1 et il n'y avait pas de frais pour l'examen.

En regard des normes d'aujourd'hui, l'examen était très simple et comportait, un test de code à 5 mots à la minute ainsi qu'un examen oral concernant l'ajustement et l'opération d'un récepteur et d'un émetteur à étincelles ; la connaissance des règlements du ministère concernant les stations amateur et des règlements d'exploitation prévus dans la Convention Internationale de Radiotélégraphie, Londres 1912 ainsi que l'habilité à reconnaître divers signaux tels que 'SOS', 'STP', etc faisaient également parties de l'examen.

Les premiers examens eurent lieu à Sault - Ste- Marie le 29 juillet 1920 et les certificats numéro 1,2 et 3 furent émis. Il est intéressant de savoir que, à la fin de 1921, un total de 63 certificats avait été émis et que de ceux là, 57 l'était pour des Amateurs dans les quatre provinces de l'Ouest.

Ça ne veut pas dire qu'il y avait plus d'Amateurs dans l'ouest mais seulement que plusieurs furent autorisés parce que Walter Howard, récemment nommé Inspecteur de radio pour tout l'Ouest canadien, était très occupé à essayer de légaliser les installations radio dans la région sous sa responsabilité. Les dossiers font voir qu'il passa la majorité de son temps durant cette période à faire des inspections et surtout des examens pour la certification d'exploitation commerciale, amateur et expérimentale à Victoria, Vancouver, Prince Rupert, Calgary, Edmonton, Régina et Winnipeg.

En 1922, on modifia les règlements afin de permettre le choix entre émetteur à étincelles ou à ondes continues (CW) ou pour les deux. Le premier examen CW eu lieu à Chatham en Ontario le 15 mai 1922 et le certificat numéro 67 fut délivré. Alors qu'un certain nombre d'examens l'était pour l'émetteur à étincelles, plusieurs candidats choisissait de démontrer leurs connaissances des deux systèmes et vers la fin de 1923, l'examen CW devint de plus en plus populaire.

Le dernier examen portant sur l'émetteur à étincelles seulement eue lieu à brandon, Manitoba le 21 mars 1924 et on délivra le certificat numéro 402. En 1925, le 29 septembre eut lieu le dernier examen portant sur les deux systèmes pour émettre le certificat numéro 572. Ce fut la fin des "étincelles" à la fois pour les examens Amateur et Expérimental mais ce système continua d'apparaître encore pendant plusieurs années dans le syllabus d'examen pour la certification d'opérateur commercial.

À noter : *cet article a paru dans un numéro précédent de TCA et est réimprimé afin que les lecteurs réguliers de TCA puissent en profiter. Malheureusement, son auteur, Larry Reid, VE7LR, est devenu une clef silencieuse en janvier 2007.*

QUA – A TOPICAL DIGEST

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Since my retirement a few years ago, I have been enjoying having more time for various interests, particularly Amateur Radio.

I get many hours of pleasure operating two old transceivers in my home station (a Kenwood TS-520S and a Yaesu FT-ONE) and a much newer Yaesu FT-817ND that I use for contests, QRP and portable operation.

CW is my favourite mode. I really like how it can slow one down and provide time to think about what the other operator is saying.

I enjoy experimenting in a wide range of different subjects – such as RF and audio circuitry, antennas and microcontrollers – that are all linked by a common theme: how they can be used to make Amateur Radio more interesting and enjoyable.

I have had the call sign VE7BQO since I was a teenager in 1964 and I began operating then with a homemade 807-based transmitter and a separate receiver.

This experience really makes me appreciate the relative convenience and portability of even a TS-520S (let alone an FT-817) and reminds me of how far we have come in 50 years!

I have always enjoyed building things and trying to figure out how they work. This interest carried over to my work as a science teacher.

As I'm sure is the case for many others who are not professionally engaged in radio and electronics, *The Canadian Amateur* and other Amateur Radio publications have given me much of my knowledge of these subjects. I find I refer often to these references to clarify my ideas, further my understanding, and discover new, and old, interesting projects to build.

I always admired Bob Eldridge's *QUA* column and in this column I would like to continue with a similar theme of bringing news, ideas and projects to your attention in the hope that you too, will receive interest and pleasure from this material. Because of its similar theme and to continue the legacy that Bob established so well, the column will continue under the name "QUA – A Topical Digest". I hope I am able to maintain the very high standard Bob established. Your comments and suggestions will assist me in this regard and will be greatly appreciated.

To begin then, I would like to share with you one of my recent projects. For several years I've been intending to build a project, a power meter, that I first saw in an article in *QST* in 2001. A copy of this excellent power meter article is available on the Internet and, along with a number of other references to this article there is an update by one of the original authors there too. It provides additional information regarding calibration and use of the meter.

Note: Wes Hayward, W7ZOI and Bob Larkin, W7PUA, "Simple RF-Power Measurement" in June 2001 *QST* and online at http://www.qsl.net/sz1a/download/build%20an%20rf%20power%20meter.pdf. For an update on the article visit http://w7zoi.net/Power%20meter%20updates.pdf.

I finally completed my power meter a few months ago, and since then it has become an extremely useful device in my experiments where it has replaced the much less convenient and less accurate power measuring techniques that I've been using. You can see a photo of my meter in Figure 1 above.

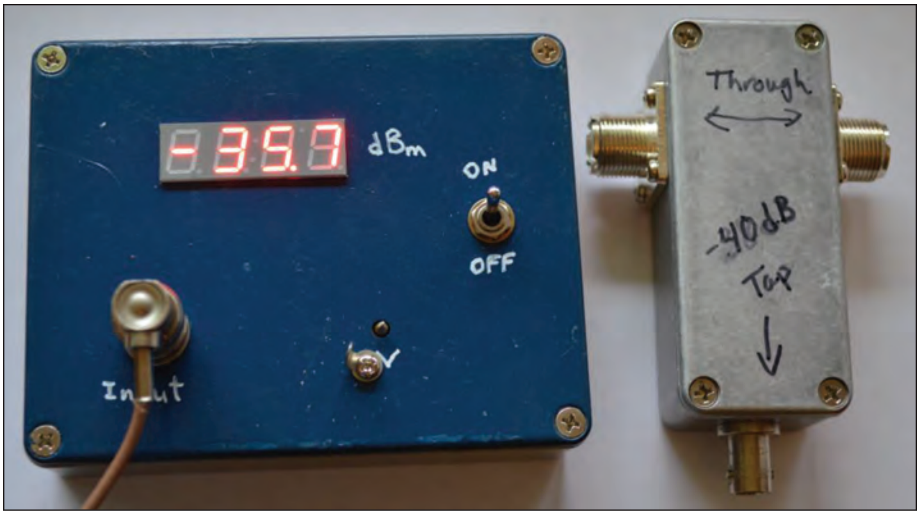

Figure 1: Power meter and -40 dB power tap.

Whereas the power meter in the *QST* article uses an ammeter display, my meter has a digital display. Before starting on my meter I really wondered whether or not to go to the trouble of developing a digital display. On one hand none of the analog meters that I have were especially suitable; and on the other hand I thought that following the needle movements of an analog meter might make it easier to make tuning adjustments to circuits. In retrospect, however, I am really glad I took some time to develop the digital display – it provides rapid and easy to read results.

My meter uses the same circuitry as that in the *QST* article, with only a couple of alterations. You can see these changes in the circuit provided in Figure 2 on the next page which shows how the digital display is added to original circuit. Instead of connecting the power meter output to the analog meter of the original, in my meter the output goes to the analog-to-digital converter (ADC) of an Atmel ATtiny261A microcontroller where the analog output of the power meter is converted to an 8-bit digital value.

The microcontroller's software manipulates these data for display in dBm on a four-digit, seven-segment LED display module. The ADC input voltage limit of 5.0 volts made necessary a second change in the original power meter circuit, a reduction of the gain of the LM358 op amp, by replacing R4 with a series combination of a 1.2 k ohm resistor and a 5 k ohm potentiometer. I set the potentiometer to 3.31 k ohm so that the LM358 provides a gain of 2.09, which is the maximum I could use without exceeding the ADC voltage limit.

In addition to the digital display which shows power in dBm, there is also a front panel connection for a digital voltmeter. This connection provides a more direct measurement

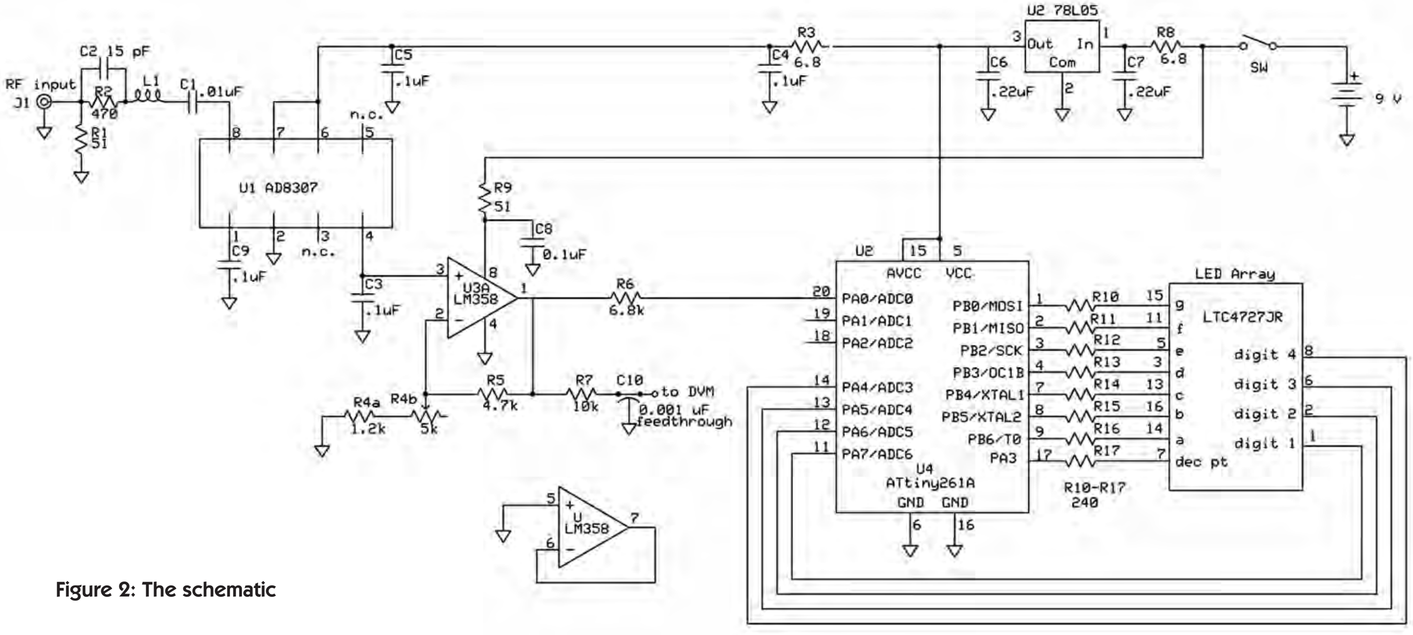

Figure 2: The schematic

of the AD8307 output (as scaled by the LM358 op amp), without the small errors inherent in the microcontroller's software manipulation of data.

I estimate the precision of the digital display as about half a dBm, and in practice this has been perfectly adequate for all the measurements I have made with my meter. If more resolution is required DVM measurements made from the voltmeter connection can provide them. To convert these voltages to power takes some effort, however, first by finding the voltage of a known power input, and second by converting voltage differences into dBm or dBμ using a calculator. The digital display is much easier!

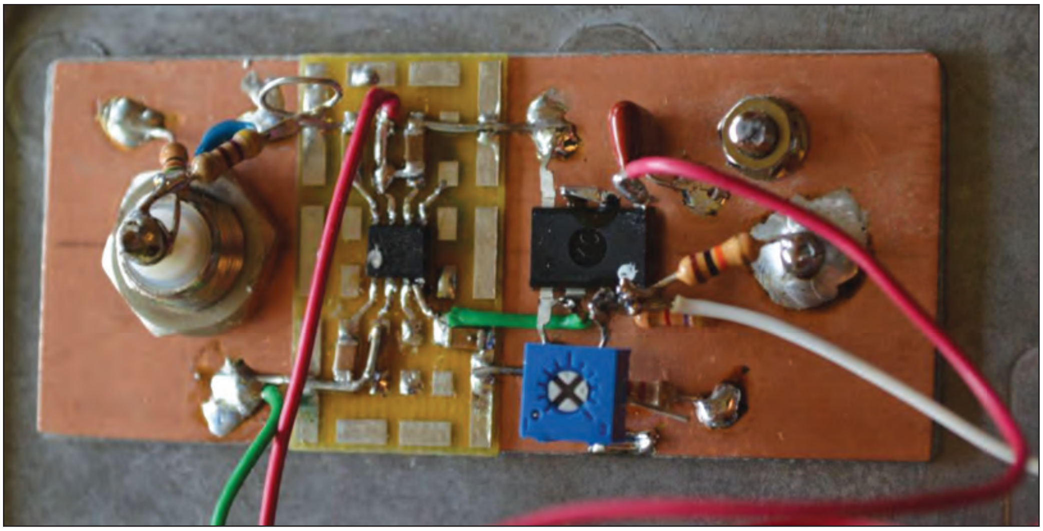

Figure 3: The AD8307 logarithmic amplifier soldered to a "surf board" and the LM358 op amp upside down in "dead bug" construction. The potentiometer sets the gain of the LM358 which is important for the calibration of the meter.

The schematic (see Figure 2 above) shows the additions and changes to the original power meter circuit. The component numbering continues on from that in the *QST* article. L1, C2 and R2 form a compensation network that extend the linearity of the power meter to about 500 MHz. L1 is formed by one turn of 3/16-inch diameter in the lead of R2. Resistor R1 establishes a 50 ohm input impedance to the meter.

Figure 3 shows how I built the RF section of the meter on a small piece of double-sided printed circuit board. The surface mount AD8307 logarithmic amplifier that I used is mounted on a "surf board" which made working with this tiny (and expensive, at about $15) part much easier. The display section – microcontroller, LED display, resistor network and voltage regulator – of the meter is shown in Figure 4 on the next page.

Note: The AD8307 and surfboard are available from DigiKey, part numbers AD8307ARZ-ND and 9081CA-ND..

The software for this meter is available on the "TCA Content" section of the RAC website at http://wp.rac.ca/tca-content-january-february-2015/. I tried to include as much information and explanation as I could in the software notes that accompany the program so that the calculations and necessary calibration data would be available to anyone wanting to duplicate this project. For further information about the display software (or about any other questions you may have regarding this project), please feel free to contact me by e-mail.

If you decide to build one of these meters I think you will find many uses for it around your station. As shown it can make measurements up to a bit more than +10 dBm (matched to 50 ohm impedance) so if you want to measure power greater than this some sort of attenuation is needed before the power meter.

I also built the –40 dB resistive tap described in the original *QST* article, and with it I can measure up to 100 W (+50 dBm) without a problem. This resistive tap is shown along side the power meter in Figure 1.

The through terminals connect between a transmitter and a 50 ohm dummy load; the power meter connects to the –40 dB BNC tap terminal.

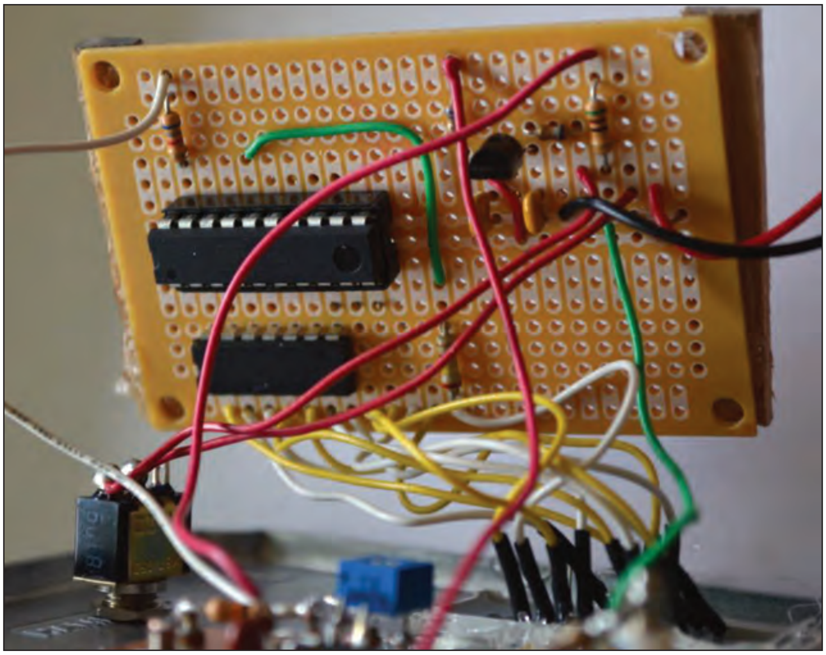

Figure 4: The ATtiny261A microcontroller is the larger socket mounted integrated circuit. Below it is a 14 pin DIP 240 ohm resistor array. The voltage regulator is at the top right and the LED display mounted in the front panel of the meter at the bottom right.

By chance, about a year ago, I discovered a really great YouTube channel, and I will end this column with a brief outline of what you can find there. This channel is produced by Alan Wolke, W2AEW. Alan is an applications engineer at Tektronix and, perhaps as a consequence, has access to a whole range of test equipment much beyond that available to most of us.

He uses this equipment very well to show how circuits work and to demonstrate principles. As I write this column there are 181 videos and more are added weekly. As you might expect he has several videos on the basics of how to use an oscilloscope and others to show applications of the oscilloscope such as component testing and measurement of coax impedance and length. He includes a number of videos on basic circuits such as LC, transistor amplifiers and op-amps. Then there are example circuits that show how to make things as diverse as automatic levelling circuits, a microphone amplifier and a capacitor equivalent series resistance meter.

If you want to know how a phase-locked loop or a diode mixer works you can find out by searching through his videos. He demonstrates construction methods – circuit prototyping techniques, soldering surface mount parts and winding toroids – and troubleshooting and repair of Amateur Radio equipment too. In short, this one site has a huge range of material from which to learn.

If you have comments or questions regarding the material in this column I will be pleased to hear from you. You can contact me through my RAC email address at ve7bqo@rac.ca.

I would like to welcome our newest columnist to TCA. Welcome aboard Allen! Ed.

For the RAC Store visit: http://www.cafepress.ca/rac_radio

"The Sydney Opera House" Project

Andy Neimers, VA7FJT

Interesting how the mind works… I recently switched my 2m FM operating rig from the venerable Yaesu FT-212RH to the more powerful FT-1802. (You just may remember that I did an A-B comparison of the two rigs in the November-December 2012 issue of TCA.)

The reason I did so was my original concern about "visibility" and the size of the screen on these rigs, versus the simplicity of the earlier rig by not having "menu" steps and programming requirements that asked one to differentiate between a "quick stab", a "one second stab" and the "whatever" prolonged stab to set commands. But I gave in for visibility of the screen and the extra power to hit repeaters that I couldn't hit before.

Not the point… One of the differences between the two rigs is that the FT-212RH "speaks" out the bottom while the newer FT-1802 "speaks" out the top.

Quite by accident, I happened to cup my hand one day behind the speaker of the FT-1802 and discovered that I could hear "a damn site better". Which got me to thinking about "tunneling" the sound forward towards me as opposed to the ceiling and the flies on same…

My "nimble and agile"(?) mind promptly went through a dozen permutations and combinations on how to channel this sound output towards me sitting in my beloved rocking chair. Hmmm? What readily available product clamps onto to the top of a small 2 metre rig and redirects sound towards the operator? Thoughts of cutting elbow pipe and the like kept me tossing and turning for several days and nights. I'm sure that all obsessive tinkerers go through the same process…

Then, while walking my two Cairn Terriers on the beach across the road, "Lightning Struck"! I was looking down at a dozen big clam shells – locally called quahogs – and realized they looked a lot like the famous opera house in Sydney, Australia. Could they be acoustically perfect? You know, like the Hollywood Bowl in Los Angeles?

I picked a few of the biggest shells I found that day and took them home to wash off the beach sand and crud. I then cut and drilled a small plywood base, added a magnetic strip from a fridge notebook, and bedded the apex of the biggest shell in that crazy putty that you see advertised on TV.

Perfection!... But then you have to accept the fact that Mother Nature spent a few million years getting the curvature of that quahog shell just right. It works like I am sitting in the top row of the Hollywood Bowl on a warm summer's night with Mariss Jansons conducting the Oslo Philharmonic in Sibelius' Karelia Suite…

Thank you Mother Nature!

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Jim MacKenzie, VE5EIS
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Byron Morse, VA3BMO
Bob Morton, VE3BFM
Wilfried Mulder, VE7OHM
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RADIO AMATEURS OF CANADA — MAPLE LEAF LEGACY CIRCLE
RADIO AMATEURS OF CANADA — CERCLE DES LÉGATEURS MAPLE LEAF

Your Personal Legacy: Making A Difference for the Future of Amateur Radio

RAC would like to recognize and honour Amateur Radio operators who have made the ultimate gift by voluntarily including Radio Amateurs of Canada in their will or other estate plans by welcoming them into the RAC Maple Leaf Legacy Circle.

One of the most important matters that everyone must manage and establish at some point in life is proper financial due diligence in estate planning for your family and loved ones.

One may also choose to express their gratitude to those organizations that meant the most to you in your life.

RAC is well aware of many testimonials whereby Amateur Radio played a very important role in many people's lives as a fulfilling hobby and for some it even became a stepping stone to their financial success in professional life.

Choosing to enroll in this RAC program is a very thoughtful and generous action we wish to recognize.

RAC Maple Leaf Legacy Circle Benefits:

- Custom-designed RAC Maple Legacy Circle pin with engraved call sign
- RAC automobile window decals and automobile licence plate frame
- Personalized certificate (signed by the RAC President)

Contact RAC for further information /
Communiquez avec RAC pour plus d'informations :

1-877-273-8304 – raccomms@gmail.com

The Radio Amateurs of Canada Inc., is a not-for-profit organization holding the following registration information:

Corporation Number 2858592
Business Number (BN) 899715189RC0001
Governing Legislation Canada Corporations Act

Radio Amateurs of/du Canada inc. est une organisation sans but lucratif enregistrée sous les désignations et numéros suivants :

Corporation 2858592
Affaires 899715189RC0001
Gouvernement Loi sur les corporations du Canada

Votre Legs Personnel : Assurer pour longtemps un meilleur avenir au radioamateurisme

RAC aimerait rendre hommage aux radioamateurs qui ont décidé de faire de Radio Amateurs of/du Canada un de leurs légataires légaux par l'expression testamentaire de leur volonté ou autrement, et ce en leur souhaitant la bienvenue dans le Cercle des légateurs Maple Leaf de RAC.

Une des choses les plus importantes que chaque personne a à décider et gérer à un moment donné de sa vie est la juste valeur des biens et immeubles qu'il souhaite léguer à sa famille et à ceux qu'il aime.

Vous pouvez aussi choisir d'exprimer votre gratitude envers des organisations qui signifient beaucoup pour vous.

RAC est bien conscient des multiples facteurs qui démontrent le rôle très important que le radioamateurisme joue dans la vie de beaucoup de personnes à titre de hobby principal et, pour plusieurs, jusqu'à devenir une rampe de lancement pour leur succès financier et leur vie professionnelle.

Choisir d'adhérer au programme de RAC est donc une difficile mais généreuse décision. Nous le reconnaissons.

Les bénéfices du Cercle des légateurs Maple Leaf de RAC :

- Épinglette du Cercle des légateurs Maple Leaf gravée à votre indicatif d'appel
- Collants automobile RAC et cadre de plaques autos
- Certificat personnalisé (signé par le président de RAC)

New MLLC member announcement / Nouveau membre CLMM

RAC would like to welcome its first member into the Maple Leaf Legacy Circle. Dave Goodwin, VE3AAQ/VO1AU (former RAC President) is MLLC member #0001. Congratulations and thank you!

RAC souhaite la bienvenue à son premier membre du Cercle des Légateurs Maple Leaf, Dave Goodwin VE3AAQ/VO1AU (ancien président du RAC), il détient numéro de membre #0001. Félicitations et merci!

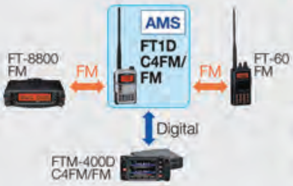
System Fusion

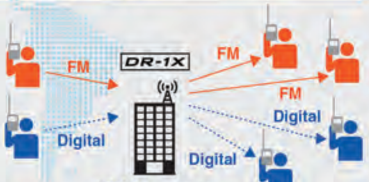
The Best Solution for the Future

System Fusion provides Total Integration of Digital and Conventional FM

FM Friendly Digital & Auto Mode Select (AMS)

System Fusion is designed to enable seamless intercommunication between conventional FM and C4FM Digital using a single unified platform, without manually switching between the communication modes.





AMS transmit

This is made possible in System Fusion by the Auto Mode Select (AMS) function. With AMS, the modulation mode of your station is automatically selected according to the received signal. If a member transmits the conventional FM, the other System Fusion radios automatically select their modulation to conventional FM and permit communication between all members.

The Choice of C4FM Digital & New Attractive Digital Functions

System Fusion - C4FM Digital makes possible **9600 bps data speed** utilizing **12.5 kHz bandwidth**. **9600 bps data transmission speed** enables the high speed data communication and provide the new attractive digital functions to expand your enjoyment of the amateur radio communication.

Digital Group Monitor (GM)

Automatically checks whether members registered to a group are within the communication range, and displays the distance and the direction with each call sign on the screen.

Smart Navigation

Real-time navigation function enables Location checking at any time. With the simple touch of a button, you can start navigating to your departure point or any location previously saved. (Backtrack Function)

Snapshot (Image Data Transmission)

Simply connect an optional speaker microphone with camera (MH-85A11U), you can take snapshots and easily send them to other System Fusion radios.

C4FM Digital Clear Voice
Clear and Crisp Voice Technology

144/430 MHz DUAL BAND
C4FM/FM DIGITAL REPEATER **DR-1X**

System Fusion Lineup

WIRES-X

Amateur Radio Internet
Linking Kit
HRI-200

BLACK

SILVER

C4FM FDMA 144/430 MHz DUAL BAND
5W DIGITAL/FM TRANSCEIVER
FT1DR ***Heavy Duty Package***
(1800 mAh Li-Ion Battery FNB-102LI included)

C4FM FDMA 144/430 MHz DUAL BAND
50W DIGITAL/FM TRANSCEIVER
FTM-400DR

YAESU
The radio

YAESU USA
6125 Phyllis Drive, Cypress,
CA 90630 (714) 827-7600

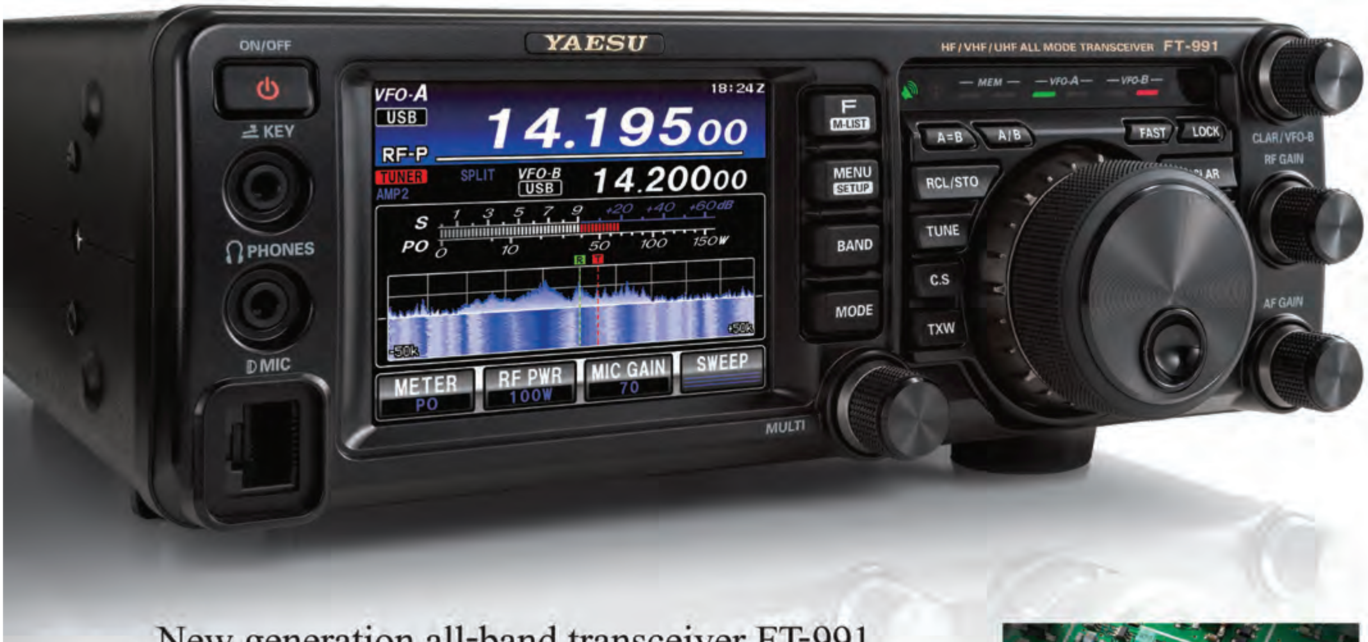
For latest Yaesu news, visit us on the Internet: **http://www.yaesu.com**

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

The radio...YAESU

FT-991

HF/VHF/UHF
ALL MODE TRANSCEIVER

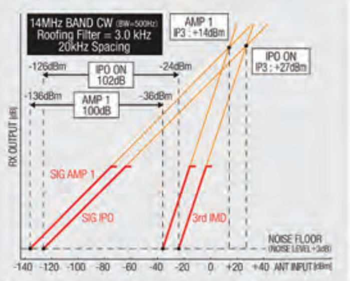


New generation all-band transceiver FT-991 offers full-fledged support for all modes including HF/50/144/430 MHz in a single compact unit

- Triple conversion with 1st IF frequency of 69.450MHz for all bands
- Narrow band 3 kHz roofing filter provided in standard configuration realizes excellent adjacent multi signal characteristics
- Features the highly acclaimed FTDX series quad mixer, along with a dedicated VHF/UHF mixer
- Highly effective interference removal functions are great for stress-free QSOs on the DX and Contest scene
- Final Stage with Ample Power Reserves: 100 W for HF/50 MHz Bands and 50 W for VHF/UHF Bands
- 3.5 inch full color touch panel display for convenient viewing and operation
- Advanced Spectrum Scope Function with Waterfall Display Capability
- Advanced technologies fully utilize the potential of C4FM Digital including high-quality transmit audio, AMS, and Group Monitor functions

* Data FR mode (high speed data communication mode) is not supported therefore image send/receive by C4FM digital is not possible.

3 kHz and 15 kHz Roofing Filter



IDR (IMD Dynamic range) / IP3 (3rd-Order Intercept Point) characteristics

C4FM
Clear and Crisp Voice Technology

HF/VHF/UHF 100 W
All Mode Transceiver

FT-991

(144 MHz/ 430 MHz 50 W)

YAESU
The radio

YAESU USA
6125 Phyllis Drive, Cypress,
CA 90630 (714) 827-7600

For latest Yaesu news, visit us on the Internet: **http://www.yaesu.com**

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

YL NEWS AND VIEWS

Val Lemko, VE5ACJ
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Hello and Welcome to 2015! Remember when as kids "Old Folks" were people in their 40s & 50s.

When we were younger, we never thought man would ever walk on the moon never mind spending weeks in space. Now we are into the 21st century and my how time does fly.

I was reminded of that on November 11, 2014 as I watched the Remembrance Day Service on CBC. I was struck by how those in attendance seem so much more in tune with what was going on. I saw young children, and realized that while we as adults knew about WWI and WWII, Korea and Afghanistan, these youngsters now have the war right in their own backyard.

I pray that these children never have to face the losses that we and our parents and grandparents had. I pray for a World that is at Peace. One can only pray.

Ok, now this next Young Lady is another I have known for many years. She wrote such a good story that I have no intention of changing much.

Ladies and Gentlemen, I give you Doris, VE5DJQ, in her own words...

OUR YL PROFILE: DORIS QUIRING, VE5DJQ

I was born in Saskatoon, Saskatchewan and I grew up on the farm in the Blackstrap Valley, south of Dundurn. I went to school in Dundurn from Grade 1 to 6 then in Hanley from Grade 7 to 11. I finished my high school at Rosthern Junior College. Going to a boarding school, with the wonderful reputation that RJC has, was a privilege. While at RJC I met my husband Eric and we were married in 1969. That same year I went back to university and graduated with my Diploma in Physical Therapy in 1971. I spent the next 4 ½ years working at the Rosthern hospital, 10 months at Saskatoon City hospital and 37 years at Smithwicks Physical Therapy in Saskatoon, retiring from that clinic on September 30, 2014.

Family life was also very busy as in 1975 our oldest daughter was born and then in 1978 our youngest daughter arrived. Radio always was part of our routine. Eric, VE5HG, got his licence in 1976. As soon as the girls were tall enough they would open the radio room door to join Dad at the radio. Holidays were spent at Hamfests where ever the car pointed.

I finally decided to write my Amateur exam in 1993. Eric had been encouraging me for many years and after many months of self-study I successfully got my Basic licence. My Amateur Radio involvement has been varied. Initially, it would be just talking to Eric. As the years progressed so did my courage. With my Basic licence, my preference is 2 metres, IRLP and occasionally D-Star. At present I call nets on 2 metres for our local club and on IRLP for our provincial reflector. I am a member of Radio Amateurs of Canada (RAC), the Saskatchewan Amateur Radio League (SARL), the Canadian Ladies Amateur Radio Association (CLARA) and the Saskatoon Amateur Radio Club (SARC). I have previously held the position of Secretary/Treasurer for the Saskatchewan Amateur Radio League and currently serving as its President.

In 2001, my husband's health became such that he needed more help with everyday life. Now it was no longer just Eric's hobby but I was truly grateful that I also had my licence. Together we are able to navigate the airwaves. I have learned how to solder and do small rewiring jobs. I also know how to use the meters and this keeps both of us involved. The new technology still gives me grief and I have the phone numbers for local Amateurs that can help if either one of us messes up the radio where I cannot reset. I have done much reading in radio manuals and sometimes it works. In all of this Eric remains my Elmer as best he can.

Our daughters have chosen not to join us in the hobby. We do have three wonderful grandchildren. Our grandson has already been introduced to Ham Radio. On a number of occasions he has joined me in the mobile while I have been calling the net. He sits very quietly and observes all that is transpiring. He has also said hello to Grandpa on the radio. Now he is only 4 ½ but it is never too early to start. Our granddaughters are still a bit too young but eventually they also will get the chance to listen.

Amateur Radio has been our family's way of life. It has been very interesting to listen to Eric on HF (that is his specialty and not mine) and IRLP has opened up the world for me. This wonderful fraternity of Amateur Radio not only enables us to share our joys but supports us in the more difficult times.

I would like to add this note for all the YLs out there that have their licence. Let's hear you on the air. You never know when you will need the radio for whatever crosses your path.

Thank you Doris for this excellent profile. Doris neglected to mention that she won the Northern Dancer Trophy for Net Controller of the Year in Saskatchewan in 2011, which was well deserved as at that time she was doing the nightly IRLP net five nights a week all by herself until we finally got more net controllers. Yes, she was the Secretary/ Treasurer for SARL for a number of years and is now its President – the first female President since its inception in 1952.

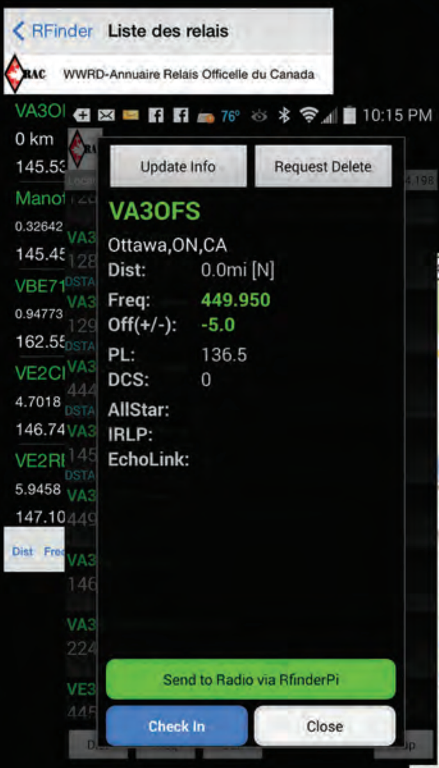
Yes folks we have come a very long way in radio since YLs were few and far between. We have joined the men in a hobby that is so diversified through technology that all Amateurs must be knowledgeable in more than just tubes, cathodes, transistors and ICs. At one time, radios could be fixed by changing a tube or two and making sure they lit up. Now, with solid state, computerized equipment, things called D-Star, IRLP, and EchoLink etc. Yes, I know some of them, but my point is, Amateur Radio has come a very long way in a fairly short time.

– continued on page 37

RAC's repeater directory now Social on Apple and Android! QSY your CAT enabled radio using RFinderPi! The features keep coming. Look for Blackberry this fall...Get RFinder on your Apple or Android today!
RAC

RFinder - The Official Repeater Directory of RAC. Support RAC by choosing RFinder as your repeater directory.

Find RFinder in Google Play, the Apple App Store on your iPhone/iPad/iPod Touch or on the web at www.rfinder.net for only $9.99[usd]. Use RFinder in your favourite radio programmer such as RT Systems or CHIRP or access it at http://web.rfinder.net. New Social functions let you post your postion and repeater you are monitoring to APRS. Your net control will love it! Finding hams monitoring machines has never been easier!



VA3OFS

Ottawa,ON,CA

Dist: 0.0mi [N]

Freq: 449.950

Off(+/-): -5.0

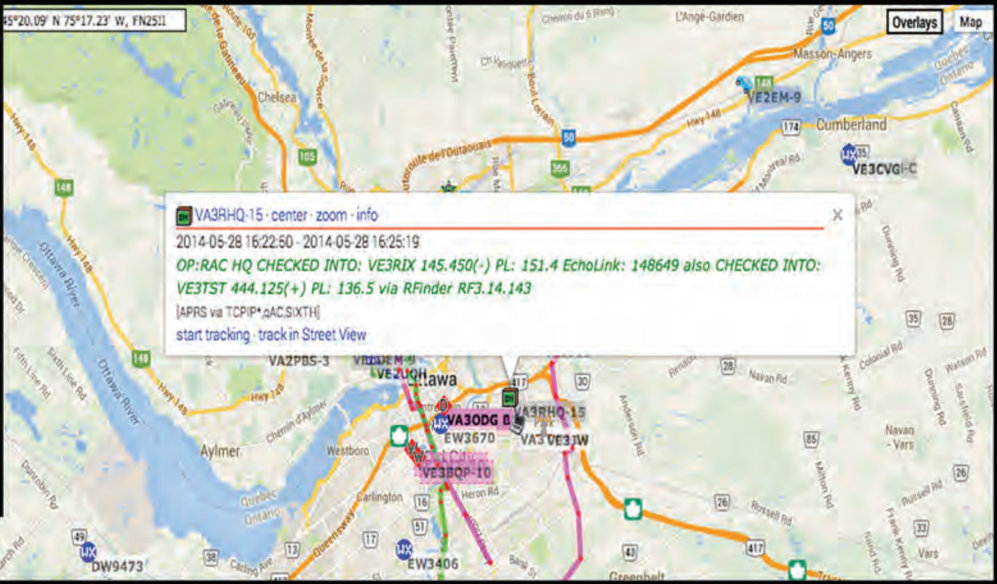
PL: 136.5

DCS: 0

AllStar:

IRLP:

EchoLink:



2014-05-28 16:22:50 - 2014-05-28 16:25:19

OP:RAC HQ CHECKED INTO: VE3RIX 145.450(-) PL: 151.4 EchoLink: 148649 also CHECKED INTO: VE3TST 444.125(+) PL: 136.5 via RFinder RF3.14.143

[APRS via TCPIP*,qAC,SIXTH]

RANDOM THOUGHTS...

Dirk Moraal, VY1NM
Box 75
Tagish, YT Y0B 1T0

On being bored, etc...

Reading the mail a while ago I followed a conversation between two Amateurs who were, as I myself often do, solving the problems of the world over the airwaves. Like me they had a variety of solutions for what is wrong with politics, health care, social issues and what not. They reminded me of other days when the plan was, as now, to bring down the "system" but only after first getting all the free government handouts.

I was about to QSY because, of course, my own opinions made more sense. My fingers were walking my hand towards the dial when one of the fellows said he was bored with Amateur Radio. Nothing to do, he said. Always the same old thing.

I too have a problem with Amateur Radio. But my problem is one of an excess of interesting things to do. In fact, there are so many interesting things about Amateur Radio that I am still trying to define my place in the hobby. And if things go wrong, I am even more interested.

When I was about as tall as a 2 metre rubber ducky, I experimented with a number of things – like carbide cannons and stink bombs – but I also had a tin can telephone and I think it was the start of my interest in communications. While my elder brother dismantled the family clock and my father's Kodak camera, I found employment in telephony. We were busy little men.

We lived in a semi-rural area near Sidney, on Vancouver Island, and I had trouble interesting any of the other kiddies in my tin cans. They were older than I and they were more interested in things that went bang. You could do that in those days, without someone losing their self-control and calling the authorities.

Tin cans and cotton string held few mysteries for them after the first muffled QSOs of "Can you hear me?" and QSLs of "Whaaat?" However I did get one neighbour, Scott, (the smaller kid we pinned the wings on, to see if he would fly), to help me with a few DX experiments which consisted mainly of adding lengths of string to see how far we could talk. Considering my size at the time, the distances achieved seemed enormous. I would like to say they exceeded 15 metres but that might be a bit of an exaggeration. The point is I discovered there is a limit to how far we could scream muffled sounds at each other before we passed out. Soaking the string also improved communications but truth be told it was not my own idea. I had left the apparatus outside and it rained.

A few years after these, um, incidents, we moved to South America where a whole new world opened up but was not conducive to the radio hobby. These were times of steam trains, horses and ox carts, plastic junk was unknown, earthquakes happened at odd times, and an extremely-interesting-growing-up swept my memories of tin can telephones (but strangely, not of carbide cannons), until one day I could not help myself and on impulse I used my savings to buy a two-channel walkie talkie – which transmitted around 49 MHz, coincidentally on the same frequency as the new breed of "radio-taxi" that had just started to flourish – but since no one else had a similar walkie talkie, I was forced to just sit and listen. That proved boring since the taxi drivers had very few topics of conversation. Resources depleted by this misadventure, I had to put the projects away and get myself through high school and beyond.

I returned to Canada a bit late for Expo 67, but by then I had got the travelling bug and for a few years alternated between working to sustain the habit and travelling around my Canada to see what it was all about. You could do that in those days, without criticism as adults still remembered the Great Depression. I had arrived in Toronto at a time it was not so crowded so I have good memories of it, but I kept on moving back and forth across the country, edging west and then north. Radio required a QTH and I had none. By the way, on one trip back to British Columbia, I met up with my childhood friend Scott. After a decade and a half, I was pleased to find that Scott actually could fly. Not only that, but he owned a real airplane. Mighty oaks from tiny acorns grow.

Fast-forward 30 years or so and I finally had my Amaeur licence. The delay was not for lack of interest. What took me so long was not being settled down anywhere. A long career in explorations and attempts to study the Amateur Radio manuals – which were truncated due to work commitments at home or abroad – came and went, but my life was not bereft of radio.

I often suspect I chose a life in the wilderness just because we had to use radios for communications. That was so cool! But had I owned a "bush radio" in those days I still would have had the same problem I had with that walkie talkie and the cab company. A limited number of people to talk to.

The interest persisted. I remember some weird home-built radios one of the bush pilots in northern Ontario carried for client use, primitive, unsophisticated collections of resistors, condensers and coils in their rough plywood boxes, and I coveted one. I still do. Later, the more sophisticated SBX11 radios were available at what seemed like half the price of a new VW Bug, they only had four channels but they always worked and they were the evening entertainment in isolated bush camps. It's too bad Spillsbury-Tindall is no longer manufacturing radios in Vancouver, as the company started up when radio was in its infancy. They should have built Amateur transceivers instead.

My own decades-old SBX11A is still in use today for commercial two-way bush communications, even though the satellite phone is more efficient and private. But never as entertaining. I clearly remember two fellows in the far north speaking Inuktitut and it sure sounded like they were telling each other racy stories, but who knew. Two oldtimers in the Yukon once held a productive chat consisting mainly of asking each other "Is dat you?" and answering "Yep it's me. Is dat you?" On another occasion in Manitoba, the Voice of the DOC came on to chastise some feller's use of "language", and asked for their names and ident to which one feller asked pointedly "Do you realize who I am?".

Upon the answer “No”, the offender said “Oh. OK then. Bye Bye!” All radio was good.

But I have strayed from my line of thought. I had intended to write a brilliant piece on all the aspects of Ham radio one could get involved with. For some it is awards, for others it is contesting, and for those very special folks, those dedicated civic minded Amateurs, it is emergency communications.

I went the QRP route (with 4 watts PEP) right from the beginning but for a while I switched to QRO operations. In my case that meant 70 watts PEP so it may not qualify as QRO except in a relative way. When that became old hat I tried digital modes, and after a while went back to SSB. Contesting used to interest me if I could be available for other stations as DX or a new multiplier. Anyone who is grouchy about contesting because of the busy bands can enjoy 30m, 17m and 12m where there is no contesting – although I have heard some high volume traffic QSO schemes on those bands. Or go digital on BPSK. And now that I have my own small box full of QSL cards I no longer hunt those very much anymore, but am glad to get the unexpected ones. I also enjoy sending out cards.

With no Internet I do not have to use LoTW or eQSL services. I like the now-and-then-surprise-QSO with a rare station. I am not too serious about chasing DXpeditions but get a charge when I can bust through a dog pile with my low power.

And SSTV? While I have made a number of contacts on SSTV, not many are from Canada. I had a foreign one which I would term scandalous and opine that restraint in sending such material might be advised. One should observe a modicum of propriety. Kiddies might be watching.

Some Amateurs have great imagination for altering their pictures and it makes watching some images pure entertainment. One of the good ones is VE3YCO, going over the Niagara Falls in a barrel or at 35,000 feet, or waving from the open window of a jetliner.

After you load the SSTV software – like MMSSTV which is free and very easy to use or maybe one of the more sophisticated ones for which you have to pay a licence fee – tune in to 14.230 MHz or check 14.227 MHz and watch. The yearly JASTA contest during August is always good for a few images. Now and then there is an odd event at my QTH: SSTV Mobile DX on low power/QRP. That should give anyone a sense of achievement.

There is a competitive edge to SSTV that many will enjoy. It is great fun to watch this one upmanship going on as hams send their images back and forth until one of them runs out of pictures and has to admit it. The downside is alligator stations (all mouth and no ears) that sometimes send long series of unidentified pictures that have nothing to do with the hobby. And then there are those who express their frustration at something or other by sending topical images.

My own recent transition to Mobile operations has been such a satisfying experience that if anyone is looking for something new to be busy with, surely this is the way to go. I have had so much satisfaction from a metre worth of wire radiator, that the cost of the rest of the gear was practically unnoticeable.

Curiously, there was a brief increase in mobile checkins to the Trans-Canada Net (on Sundays and Holidays, 1800z on 14.140 MHz so join in and test your mobile/portable/QRP/base station capabilities by checking in regularly). On good days I can manage a /M contact with one or other of the three net controllers (West: Tom VA7TA; Central: Grant, VA4GD; and Eastern: it used to be Len, VE3TC, but sadly he is now a Silent Key and at this writing it is shared), all the way there from here in southern Yukon. I feel welcome on this Net. I also have a fistful of radio friends I am in regular contact with, and that lends structure to the hobby. In short, I get to do a little bit of anything that tickles my radio fancy.

And this is just a start. Aside from the talking part, there is all the busy work of station setup and improvement and maintenance (nothing is forever any more). Antenna and tower work. Building projects. Upgrading the licence. And how about re-learning the arcane but beautiful art of CW? Or join your local club?

Even keeping abreast of the latest information of the Canadian Ham World through publications like TCA is an interesting part of the hobby of radio. And the best part is you can take TCA everywhere, and there are no batteries to run down while you read your magazine and you can drop it and it won’t break.

I find that radio is the sticky stuff that binds together various aspects of my life. Work, play, other hobbies, travel and even in-home care for the elders: there is always some activity I can combine with radio communications. I have a 95 year old parent who, though not a ham, enjoys answering her (licensed) bush radio.

A bright spot in her daily routine.

I now must apologize for all the Amateur activities I have no room to mention. You out there doing them know who you are! Let someone else know. With all this going on, how could one ever become bored?

Truly, you can have everything you ever wanted to have and do anything you ever wanted to do, as long as you are satisfied with doing a little bit of the former and having a little bit of the latter.

YL News and Views, continued from page 34

Things are changing everyday – probably for the better – and we should be making sure our girls and boys get the opportunity to learn about Amateur Radio and all its various ways of connecting to the world.

When I was younger, I loved the song “It’s A Small World”. At the time, the world was so big, and in a way it still is, but now we can connect so much quicker with other Amateurs around the world – much quicker that when radio first started up. Now we even talk to “Hams” in outer space.

So ladies and gentlemen, I thank you for taking the time to read my column. I am still looking for YLs to interview so please send me an email (ve5aq@sasktel.net) and I will get back to you.

Please don’t forget about the CLARA nets, the upcoming CLARA Contest (actually I think the name is changing to CLARA QSO Party), and Guides on the Air (February 21 and 22). You don’t have to be a member of CLARA to check into the nets, we just love hearing new girls on the air. Don’t be shy. Join us.

Please check the CLARA website at www.clarayl.ca for information on the above events

That’s all for this time around folks, hope you are all keeping well and warm.

33, 73, 88 or whatever the case may be... Val, VE5ACJ

MY ARROW-STYLE VHF/UHF PORTABLE SATELLITE ANTENNA

Bertrand Zauhar, VE2ZAZ

The following article can be found online at: http://ve2zaz.net/Arrow_Ant/Arrow_Style_Ant.htm

One of the pleasures of working the Amateur Radio satellites is making contacts in a portable application and with QRP power. This requires a VHF/UHF handheld FM radio and a handheld 2-band antenna.

After browsing the various Internet antenna construction sites in search for the best portable satellite antenna for the V/U and U/V modes, I figured I could build something good. So I decided to combine the best ideas of a few existing designs and add my own twist to it. This gave my own "Arrow-Style" VHF/UHF antenna. My sources of inspiration were:

- Homebrew Satellite Antenna, G6LVB: http://www.g6lvb.com/HomebrewArrow.htm
- Cheap Yagi Antennas for VHF/UHF, WA5VJB: http://www.fredspinner.com/W0FMS/CheapYagi/vjbcy.html
- The Microduplexer, KI0AG: http://www.k0lee.com/duplexer.htm

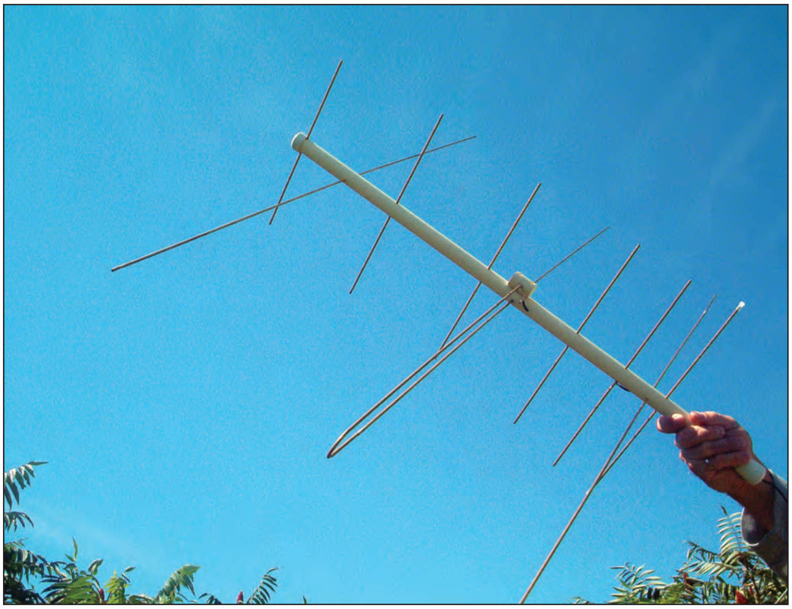
I recommend that you consult the links above before proceeding with the reading this article as I make implicit references to those designs.

FEATURES

So after reading and thinking, I came up with this improved "Arrow-Style" VHF/UHF antenna. The resulting antenna has the following characteristics:

1) I use a 3/4-inch CPVC plastic pipe as the boom, as opposed to wood.

2) I use 1/8-inch brass rods for the elements; they are commonly available in hardware stores and are stiffer than aluminium rods or copper wiring of the same diameter.



3) I feed the driven elements with the "semi-folded dipole" approach, which simplify mechanical construction and impedance matching.

4) I fit a diplexer inside the boom.

5) I use RG-174 coaxial cable.

6) I conceal the coaxial cable inside the boom.

7) I make the VHF elements easily disassembled, which makes the antenna much smaller for travelling or for storage purposes.

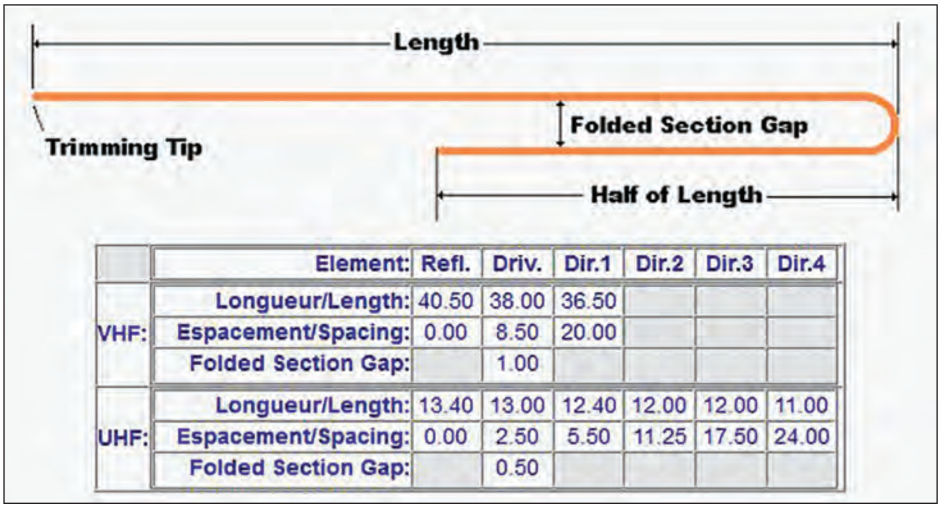
The antenna performance should match or surpass the Arrow antenna. The UHF section is made of six elements with gain-optimized spacing as opposed to seven elements with equal spacing for the Arrow. This makes my antenna shorter by six inches. The antenna is lightweight, only 19 ounces (550g).

Have you looked at the price of the original Arrow antenna? How about working on this evening project and spending only 1/3 the cost?

CONSTRUCTION

Element Lengths and Positioning

The suggested boom length is 30 inches. Since the UHF antenna is the longest of the two, the 4th Director (Dir.4) should start close to the tip of the boom. By measuring 24 inches back from that position, it will give you the position for the Reflector (Refl.) element. This leaves roughly six inches for the handle.



	Element:	Refl.	Driv.	Dir.1	Dir.2	Dir.3	Dir.4
VHF:	Longueur/Length:	40.50	38.00	36.50			
	Espacement/Spacing:	0.00	8.50	20.00			
	Folded Section Gap:		1.00				
UHF:	Longueur/Length:	13.40	13.00	12.40	12.00	12.00	11.00
	Espacement/Spacing:	0.00	2.50	5.50	11.25	17.50	24.00
	Folded Section Gap:		0.50				

Note: All dimensions are shown in inches. Multiply values by 2.54 to convert to centimetres.

As for the VHF antenna, its Reflector element can be positioned forward of the UHF Reflector by 3/4-inch. The Table on the left (below) summarizes the element dimensions and spacing for frequencies of 146.000 MHz and 435.000 MHz.

I suggest you cut the two driven elements a bit longer and then tweak the SWR by trimming the element tip. Use a hard cylindrical object of the right diameter to fold the Driven elements.

Boom Drilling Technique

Care must be used when drilling element holes on a circular boom. I found it almost impossible to drill element holes that would yield elements that are parallel and in the same plane, without using some form of guidance and reference. My trick for getting parallel elements is to first screw down the boom at both ends against a narrow wooden plank or board, and to use a vertical drill press to make the holes.

VHF Driven Element Fastening

Since the boom has only a 7/8-inch outside diameter, I added another short piece of pipe to support the folded portion of the VHF Driven element. I used two self-tapping screws to fasten the piece of pipe to the boom (see Figure 2 on page 40).

UHF Driven Element Fastening

The UHF Driven element has a gap of only 1/2-inch so bending the feedpoint end of the folded section to create a

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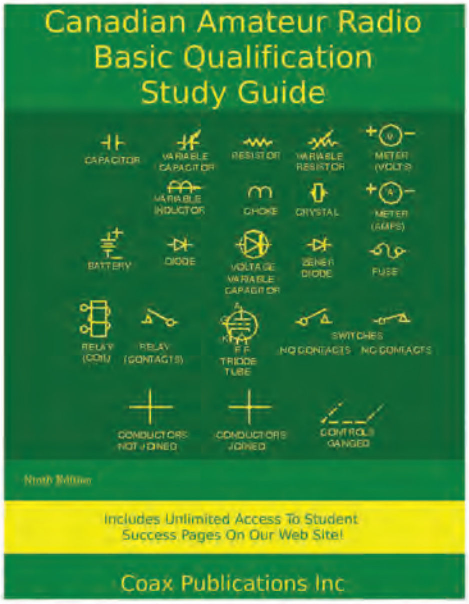

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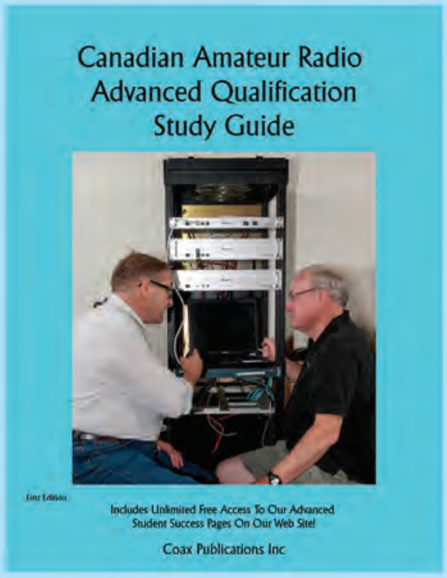

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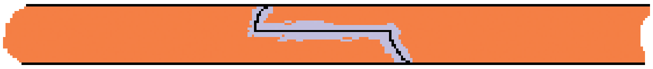
1/4-inch gap is manageable and allows it to support the element without adding another short piece of pipe like for the VHF Driven element.

Element lengthening

If, like me, the only length of brass rod available to you is 36 inches, you will need to lengthen each of the VHF elements by splicing two brass rods together. A good way to do this is by filing off half of the rod thickness for about 1/2 of an inch long at each end with a grinder. Then, position the two ends one against the other and solder the two rods together using a gas torch or a powerful soldering gun. The end result is illustrated below.



VHF Feedpoint Connection

The feedpoint connection to the VHF Driven element is done in such a way that it can be disconnected if the antenna is to be disassembled for travelling, which will be the case for most situations. I use DIP integrated circuit socket pins for the mating. You need a DIP socket of the machined type, the kind that has barrel contacts. Using a sharp knife, cut the plastic to detach four pins from their socket. Solder two pins with their barrel end facing the coaxial cable. Solder two pins to the coaxial cable with the pin ends facing the driven element. This is a temporary but effective connection. Connect the coaxial centre conductor to the folded section end and the shield to the long section (see Figure 3). Other means of connecting can be used.

UHF Feedpoint Connection

Since I don't intend to disassemble the UHF section, the feedpoint connection for the UHF Driven element is more straightforward. I simply split the coaxial centre conductor and shield. Again, I solder the coaxial centre conductor to the folded section end and the shield to the long section.

Diplexer

Since most handheld dual-band radios have a single antenna connector (VHF and UHF signals are combined), you will need an antenna diplexer. A commercial diplexer will work fine, but it is quite heavy. Remember that you will have to point this antenna by hand for 15-minute satellite passes. Because of this, I elected to build the Microduplexer (http://k0lee.com/duplexer.php).

I have the capability to make my own PCBs so I tried to obtain the original layout from the author. It appears that the final layout in a ready-to-make form is no longer available. So I re-imported the Autocad DXF file, re-worked the proposed layout, filled the islands, etc.

The final Microduplexer board layout is available on my website and I provide a Gerber file of the top copper layout. This is pretty much all you need to have this PCB made by a PCB shop. I also provide a PDF file for home-making the PCB. Printing the file with 100% scaling will give accurate results.

- http://ve2zaz.net/Arrow_Ant/microdup.GTL
- ve2zaz.net/Arrow_Ant/Microdup_board

Note that in order to fit the Microduplexer PCB inside the CPVC boom, I had to file off a bit of both long edges of the PCB. I did this before installing the components.

Coaxial Cable Runs

I run the coaxial cables inside the boom. I drill holes at an angle, close to the feedpoints, where I bring out the coax (see Figures 1 to 4 on the right and on the next page).

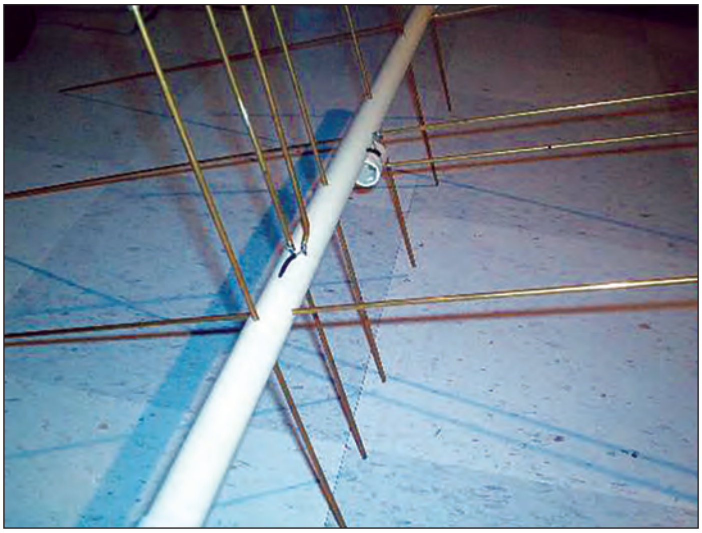


Figure 1: Rear view of Boom Drilling Technique

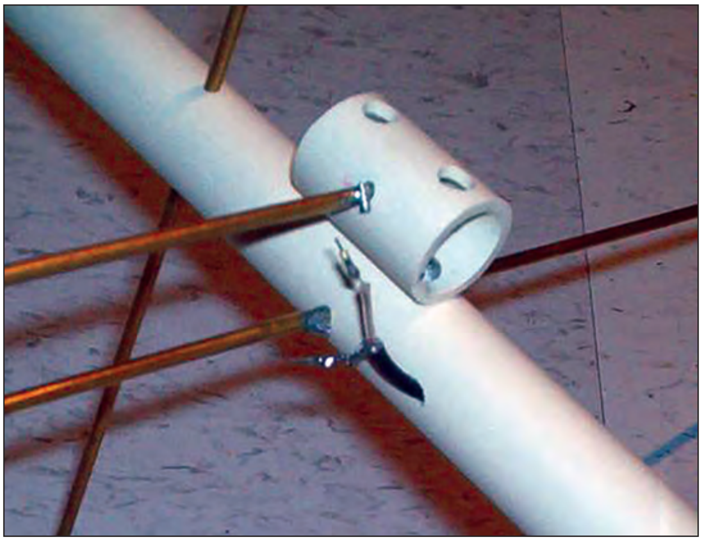


Figure 2: VHF Feedpoint Connection

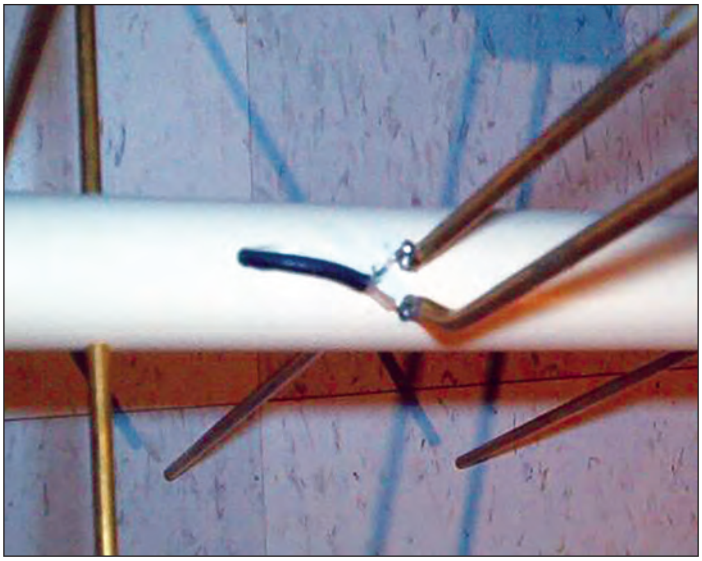


Figure 3: UHF Feed

The Microduplexer is located inside the boom, within the handle portion. this is where the three coaxial cables converge. I bring out the transceiver feedline at the back of the handle.

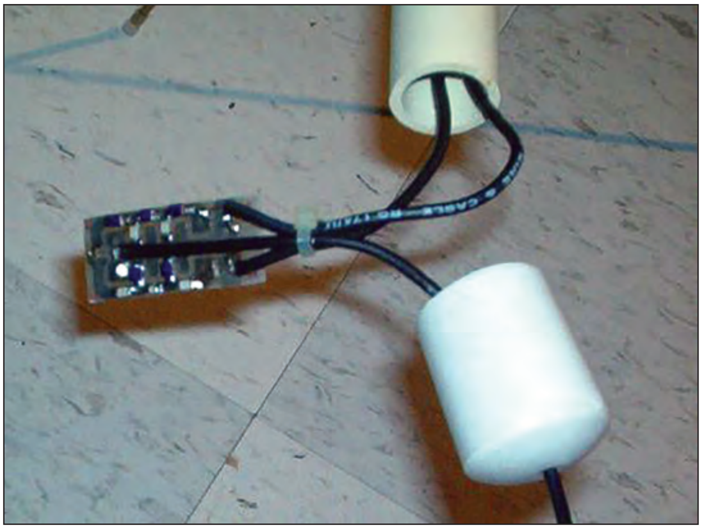


Figure 4: The Microduplexer

Other Considerations

- I installed plastic caps on the element tips to save my eyes and my furniture.
- I Installed 7/8-inch vinyl endcaps on the boom. Looks neat... I punctured a hole through the rear endcap to bring out the transceiver feedline.
- I do not fasten the elements to the boom in any way. The elements fit quite tightly when drilling the boom with a 1/8-inch drill bit. Some hot melt glue, choc nut, set screw or clips could be used if you are worried about exact positioning.

RESULTS

During operation, the results have been quite gratifying so far. The VSWR is at less than 1.5:1 on both bands. I have no problem working LEO satellites pretty much from horizon to horizon. Of course, some “big guns” will swamp my signal every now and then, but that is not due to the antenna, but rather to the 2 watts of RF output I use on the uplink.

The cool thing I did was to bring my portable setup to our summer camping trip... so much fun when my wife and kids are gone on a bike ride!

PARTS LIST

- 1 3/4-inch inside diameter CPVC water pile, 36 inches long
- 7 1/8-inch brass rod, 3 feet long
- 2 Vinyl cap, 7/8-inches diameter.
- 6 feet RG-174 type coaxial cable, BNC connector at one end
- 1 Microduplexer, assembled
- 4 DIP integrated circuit socket pin
- 2 Self-Tapping screw, small size

I have always had a passion for telecommunications. I studied and obtained a Bachelor’s degree in Electrical Engineering, with a specialty in Telecommunications, of course! I worked for Nortel Networks from 1989 to 2010 and am currently doing fibre optics communication equipment design at Ciena in Ottawa. I am radio-active on HF, VHF, UHF and microwaves. I communicate both as a mobile and a fixed station. I have been active in EME (Moonbounce) on 432 MHz and 1296 MHz, and I like VHF/UHF terrestrial contests. I also design and assemble various articles, antennas, radios, etc. and test them over the air. A real “hacker”... Ask my wife about it!.

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HELP WANTED

Assistant Section Managers

The Ontario East Section is looking for two candidates to become Assistant Section Managers: one as the Section Affiliated Club (Liaison) Coordinator and one as the Section Technical Coordinator.

The Affiliated Club (Liaison) Coordinator management role will be to assist clubs with internal administration advice where appropriate and consistent with the Affiliated Club President’s Workbook, assist club’s with keeping club contact information current on the RAC website, promoting joint club activities and programs across the Section, and encouraging clubs to join RAC as an Affiliated Club.

As the Club (liaison) Coordinator you will seek to promote and work with each club liaison person in each club within this Section as each club liaison volunteer is identified and comes on board.

The Technical Coordinator management role will be to facilitate club and local Technical Specialist involvement in RAC technical committee activities, to facilitate responses to Industry Canada papers and enquiries, and to assist with questions of spectrum management or interference.

Interested applicants regarding any of the above responsible Section leadership positions should contact the Section Manager directly at 613-679-4474 or by email at ve3ipc@gmail.com.

– Michael Hickey, VE3IPC, Ontario East Section Manager

VA3RAC Operates on Canada Day from Manitoulin Island

Igor Slakva, VE3ZF
DXpedition Team Leader

In light of our intent to participate in the RAC Canada Day Contest in 2014, we decided to plan a concurrent (and admittedly annual) DXpedition to Manitoulin Island in Lake Huron in Northern Ontario.

As a token of celebration for participating in the RAC Canada Day Contest, our team was awarded the privilege of operating under the RAC call sign "VA3RAC".

We are very grateful to the Manitoulin Island Radio Club for all of their hard work. This year's destination, and the site of the operation, was the highest point of Manitoulin Island, McLean's Mountain, which towers at 300 metres above sea level.

Over the span of several days before the start of the competition, a team consisting of Igor, VE3KAO, Patrick, VE3HZQ and Igor, VE3ZF, were able to set up the antenna on the mountain's highest peak.

What we didn't fully account for, however, was how absolutely unpredictable a mountaintop climate could be, or just how significantly bad weather can complicate the antenna preparation process.

The weather wasn't just "bad", it was downright malicious. In a single day it wasn't uncommon to be battered with almost every single earthly element imaginable. For example, the morning would cook you for a few hours with desert heat, then there would be blitzkriegs in the afternoon with torrential rain and thunder that eventually cleared up – only to turn back into desert heat once again. Then, the cycle would start anew.

Now on to the equipment! It took two of us working together, but we managed to install quarter-wave verticals on 160 metres; an inverted vee on 80 metres; G5RV, 2-element phasing verticals at 40 metres; 3-element Yagi Spider Beam on 20-15-10 metres; and Yagis for 6 and 2 metres as well.

In addition, we were able to listen to a 160 metre beverage antenna from the tent; it was portable low power operation.

Despite the weather, the RAC Canada Day Contest once again passed by extremely quickly and there was a high level of activity amongst Canadian stations.

During the contest we even had some interesting QSOs with VY0RAC from Ellesmere Island (broke EU pileup from first call!), VE8RAC from Inuvik and VE8AU from Hay River in the Northwest Territories.

Summer's sporadic weather even provided us with the opportunity to have local QSOs on 10 metres with VE4VT, VE4DXR and VE4EA – that gave our team an extra two multipliers.

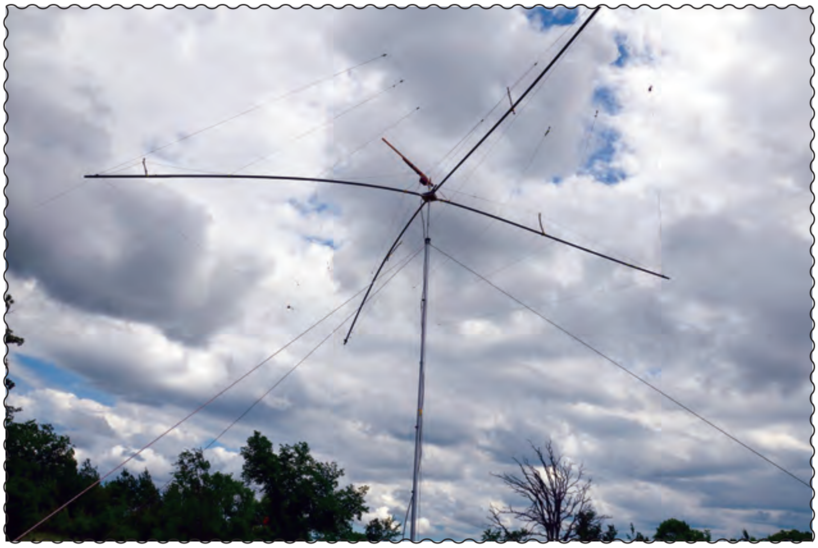
The competition finally met its conclusion, with us having more than 1,000 QSOs.

I would like to once again send my gratitude to everyone who helped make to this possible: the Manitoulin Amateur Radio Club; Smiths Detection Canada; Max, VE3CCN, for aiding us in logistic and organizing the expedition; and everyone who contacted us during the RAC Canada Day Contest 2014.

The view from McLean's Mountain: highest peak on Manitoulin Island.

Operating from the tent: Igor, VE3ZF and Igor, VE3KAO.

Patrick, VE3HZQ; and the Kenwood TS-590 – a great CW transceiver.



The Spider Beam after a thunderstorm.

A Direct Digital Synthesis VFO

Allen Wootton, VE7BQO

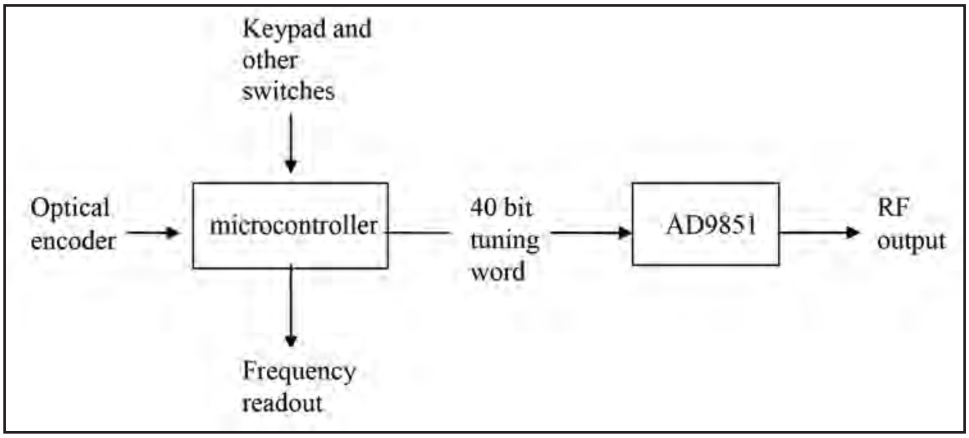


Figure 1: Relationship between input and output devices, microcontroller and AD9851 DDS chip.

INTRODUCTION

This project began several years ago as I was thinking about the various possibilities for a Variable Frequency Oscillator (VFO) for a multiband radio. Compared to an LC VFO, a Direct Digital Synthesis (DDS) seemed to have a number of advantages. Such a VFO would eliminate the need for a high quality and expensive variable capacitor – and should provide stable frequencies anywhere within its wide operating range – so a bank of oscillators for VFO frequency conversion would not be required.

Instant frequency change would be possible too so that one physical VFO could act like two, as is the case in modern transceivers. Frequency memories, push button frequency input, receive or transmit increment tuning and digital frequency display could also be incorporated as part of the design. In short, a DDS provided a possible route to the capability of a modern transceiver in the homebrew radio I envisioned.

Unfortunately, all these possibilities were negated by the fact that even after some research I did not understand much, if anything, about how a DDS works and consequently I had no idea of how to begin a DDS project. With the idea in my mind, however, I gradually learned enough to produce a working DDS VFO. This VFO is still an ongoing project but I am very excited about the progress so far, and I hope this article may encourage others to try similar projects.

DDS THEORY

My more thorough understanding of how a DDS works began with an attempt to make an audio signal generator using a microcontroller. Central to the operation of the resulting audio generator is a table of sine values stored in the microcontroller's memory and an external digital-to-analog converter. Since I used an 8-bit microcontroller, there are sine wave values stored in the table at intervals of 360/256 degrees

For example, beginning at 0, the next few values are 0.0244, 0.0488, 0.732 and 0.0976 for the sines of 1.4, 2.8, 4.2 and 5.6 degrees, respectively. A numerical keypad allowed me to enter changes to the microcontroller's program which determined how quickly it cycles through A Direct Digital Synthesis VFOthis table. For example, at low frequencies the program goes through the 256 values at a slow rate whereas at higher frequencies it skips some of the values. In each case the output is an 8-bit, base 2 number that is presented on eight of the microcontroller's pins. I used an R2R ladder composed of a set of resistors of value R and another set of value 2R as a digital-to-analog converter to transform this digital number into an analog signal.

This audio signal generator worked remarkably well, but if you consider my brief description above you can see that there are some limitations to this method of sine wave generation. First, the 256 steps into which the sine wave table is divided mean that if you look closely at the output sine wave on an oscilloscope you can see that it is, in fact, also a stepwise approximation of a sine wave. Second, as the frequency is increased, steps within the table are skipped and the resulting output is a more and more distorted sine wave output. The digital-to-analog converter at the output introduces its own distortions as well; if the resistor values are not accurate R and 2R values then the voltages produced at the output will be inaccurate too. Finally, digital switching within the microcontroller can introduce undesired artifacts.

FROM THEORY TO PRACTICE

What I have described using the example of this audio signal generator is direct digital synthesis. Reduced to its basic operation there is some method of user input, a fast processor that looks up sine values in a table and a digital-to-analog converter that converts binary numbers into an analog sine wave. A modern DDS incorporates all of this into one tiny chip.

Nevertheless, even with this understanding an RF VFO still looked intimidating to me for several reasons, one of which was the tiny chip which, in various projects I researched, was mounted in a multi-layer professionally designed printed circuit board. Then there was the requirement for a high frequency oscillator to provide a clock for the DDS chip's internal operation. I was uncertain about the design and construction of a good, stable oscillator in the 100 MHz range.

Finally, whereas the individual components of an LC VFO allow testing and probing with an oscilloscope, a DDS chip is a tiny black box – if everything works fine, great, but if not, which of a number of different things in software or circuit is the culprit? In spite of these concerns I took advantage of the free sample offer of DDS chips that you can find on the Analog Devices website and requested an AD9851 DDS chip. They sent me two.

I requested the AD9851 chip because of an application note, AN-557, that can also be found on the Analog Devices website. This application note was really inspiring to me for two main reasons. First, it provided a superb example of what could be done with a DDS along with an explanation of how to do it. Second, because it showed how the tiny surface mount DDS chip could be mounted without requiring professional facilities.

While the information provided in Application Note AN-557 is based on the slightly older AD9850, this chip is pin compatible to the AD9851. The AD9851 has a higher maximum clock frequency, however (180 MHz vs. 120 MHz), and an internal 6X frequency multiplier.

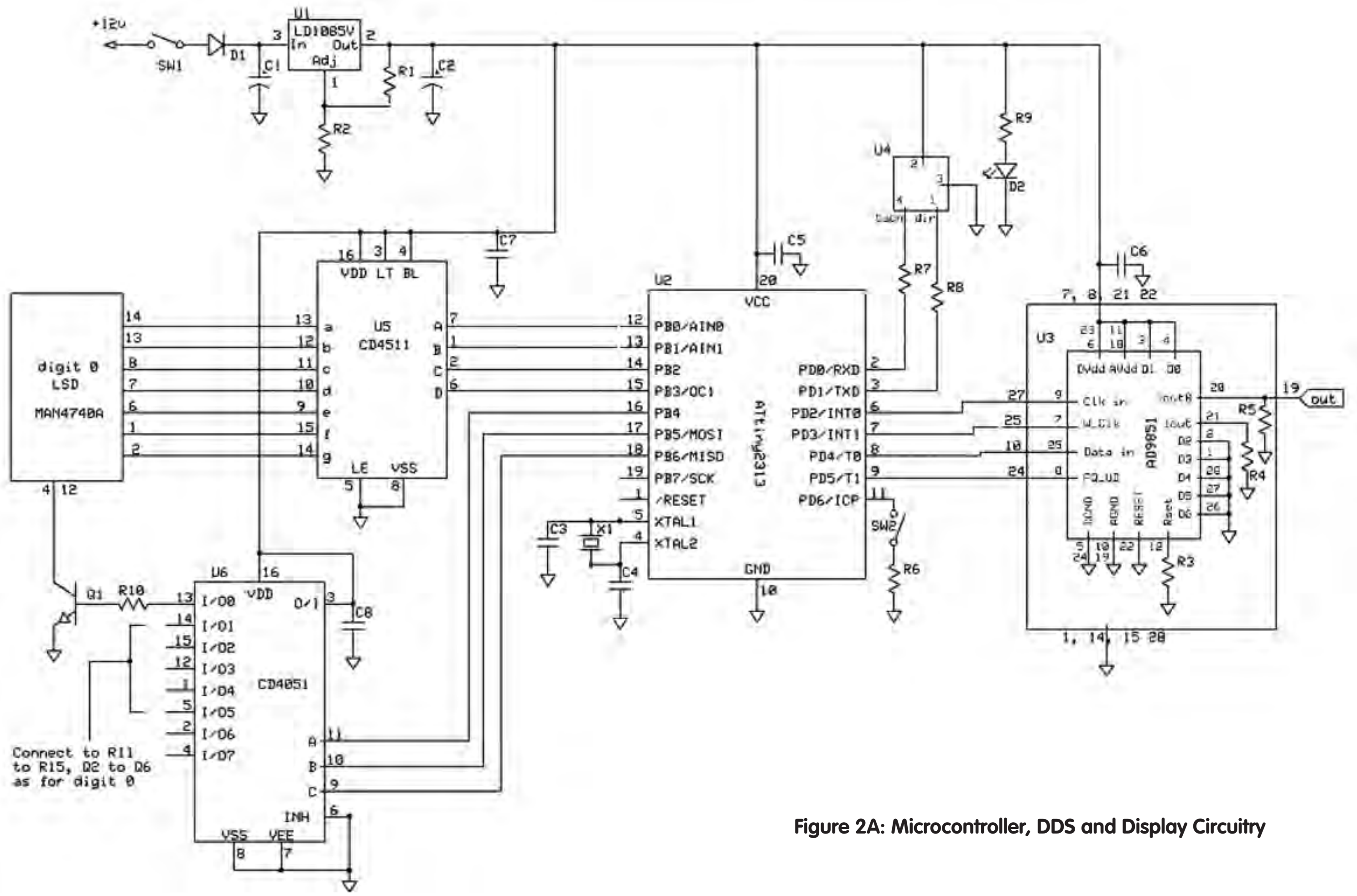


Figure 2A: Microcontroller, DDS and Display Circuitry

PROGRAMMING THE AD9851

The frequency output of an AD9851 is determined by 32 bits of a 40-bit word provided to the chip. The remaining 8 bits set some of the operating parameters of the AD9851. This word can be entered using several different means – some people have even used switches attached to the appropriate pins of the DDS chip for this purpose. The most convenient way to do the data entry, however, is to use a microcontroller because the microcontroller provides an easy to use and, when properly implemented, invisible interface between the user and the DDS chip. Figure 1 on the previous page shows diagrammatically the function of the microcontroller in providing this link between the user and the DDS VFO's output.

For the AD9851, two data entry modes are available: parallel or serial. In parallel mode the 40-bit word is entered in five groups of eight. A clock and frequency update inputs are also required so to implement this mode, 10 microcontroller pins are needed. In serial mode the 40 bits are loaded sequentially on one pin with a clock and frequency update on completion. Thus this mode requires just three pins making it much more viable for the limitations imposed by the number of pins on a typical microcontroller. Therefore, like the author of AN-557, G3XJP, I used serial data entry for my DDS VFO.

You can see the three pins used to program the AD9851 in the circuit diagrams (see Figures 2A and 2B) provided above and on the next page. In the diagram you will see that pin 7 of the ATtiny2313 microcontroller provides the W_CLK word load clock pulse. Data to be transferred are provided on the microcontroller's pin 8. These data will be transferred, one bit at a time, on successive rising edges of the W_CLK pulse. On the completion of the transfer of 40 bits the FQ_UD frequency update pin, pin 9, goes high to signal to the AD9851 the completion of the frequency determining word.

THE DDS CLOCK

Both the microcontroller and the AD9851 require a clock. It occurred to me that it might be possible to use the microcontroller clock to do double duty in this regard. For example, I thought that perhaps an inexpensive 20.48 MHz crystal could be used for the microcontroller oscillator and then multiplied by the AD9851 6X frequency multiplier so as to provide a 122.88 MHz clock for the DDS. In theory the output from a DDS can be up to half the clock rate; in practice a more conservative maximum of about one-third of the clock is considered advisable. One-third of 122.88 MHz would give a maximum output frequency of around 40 MHz, a value I felt would be satisfactory for the use I had in mind for this DDS VFO.

While I realized that this approach would probably not be the best way of providing a clock for the DDS, I felt it would have the advantage of being simple to implement. By setting a "fuse" within the ATtiny2313A, the 20.48 MHz clock frequency can be routed to an output on pin 6 and setting one bit of the eight non-frequency determining bits of the 40-bit tuning word turns on the frequency multiplier. However, I had no idea if the 20.48 MHz signal provided to the AD9851 would be sufficiently stable, both long and short term. Using the AD9851's internal 6X frequency multiplier would also multiply any instability in the 20.48 MHz input too. In addition, the AD9851 data sheet shows that when the clock multiplier is used, more "spurs" (unwanted, low level signals unrelated to the desired output frequency) are produced. However, after looking at crystal data sheets specifying frequency at +/- 50 ppm, I was uncertain about how stable I could make an oscillator in any case and I felt that using the microcontroller oscillator as the input to the DDS would at least provide a base for further experimentation.

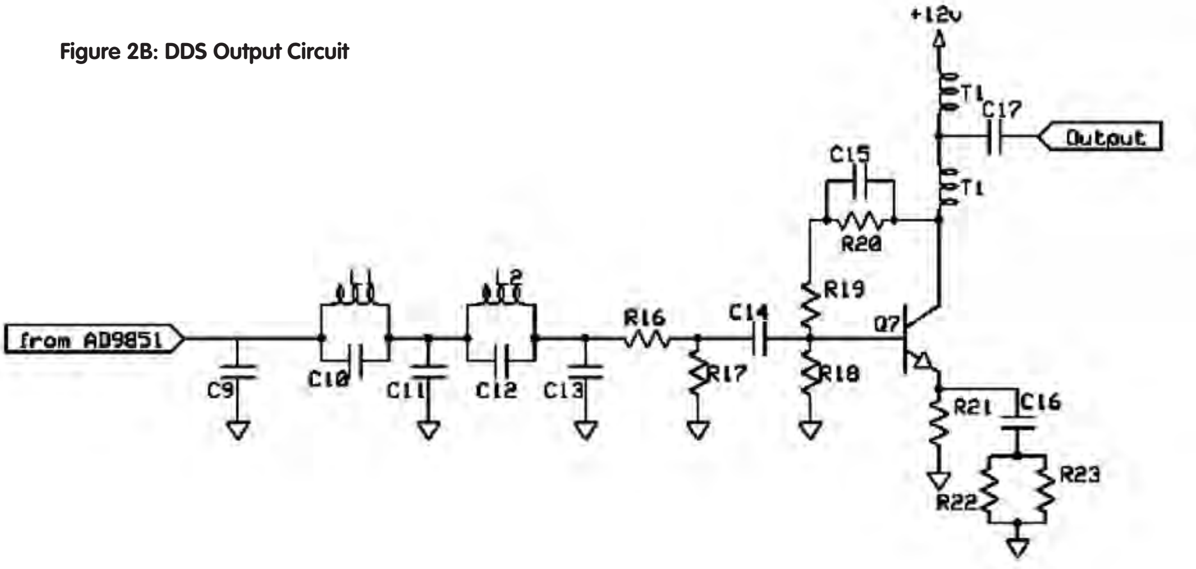


Figure 2B: DDS Output Circuit

PREPARING THE AD9851

The AD9851 is a very small 28-pin SSOP (shrink small outline package) chip intended for surface mount construction on a 4-layer circuit board. Fortunately, the author of Application Note AN-557, G3XJP, spent a great deal of time devising a way in which the AD9850 – and by extension the AD9851 – could be incorporated into hand-built Amateur equipment.

Two pages of AN-557 are devoted to making the AD9850 module. I followed the instructions exactly and except for my own programming errors the AD9851 module that I made worked right away. You can see my completed module along with the ATtiny2313A microcontroller in Figure 3 below. As you will see there, the microcontroller, crystal, and AD9851 module are all mounted on a solderless breadboard. In spite of the interelectrode capacitance of these breadboards I have found they work satisfactorily for the purposes to which I have put them even at 20 MHz.

With just the microcontroller and AD9851 DDS operating, I was very pleased to find RF on the AD9851 module's output pin and, after resolving some programming issues, the frequency even matched my expectation. Even better, I could obtain a whole range of output frequencies by typing a new 40-bit tuning word into the program and reprogramming the chip. A quick way to find the appropriate tuning word is to use the AD9851 Device Configuration Assistant. Otherwise, calculating the value of a tuning word can be even more tedious than the reprogramming.

In spite of my pleasure at this initial success there was obviously much more to be done, for unless only a single frequency output is required, some easy method of changing frequency is needed. I began by connecting a debounced switch on one of the microcontroller's pins (see Figure 4). Each closure or opening of the switch (a wire to ground) changed the pin's voltage and triggered a software interrupt routine which added an increment to the tuning word and

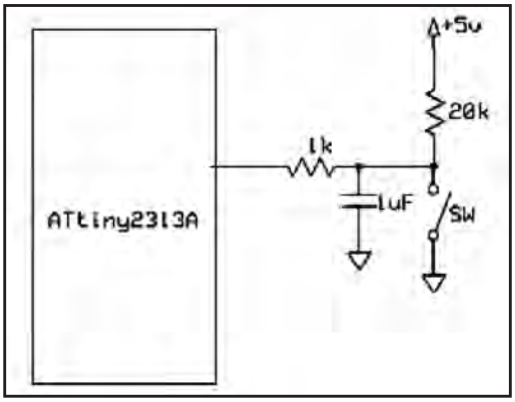


Figure 4: A debounced switch connected to one of the microcontroller's pins. Without the resistors and capacitor the voltage on the microcontroller pin will change a number of times during a single switch closure and the microcontroller will respond so quickly that it will react to each change.

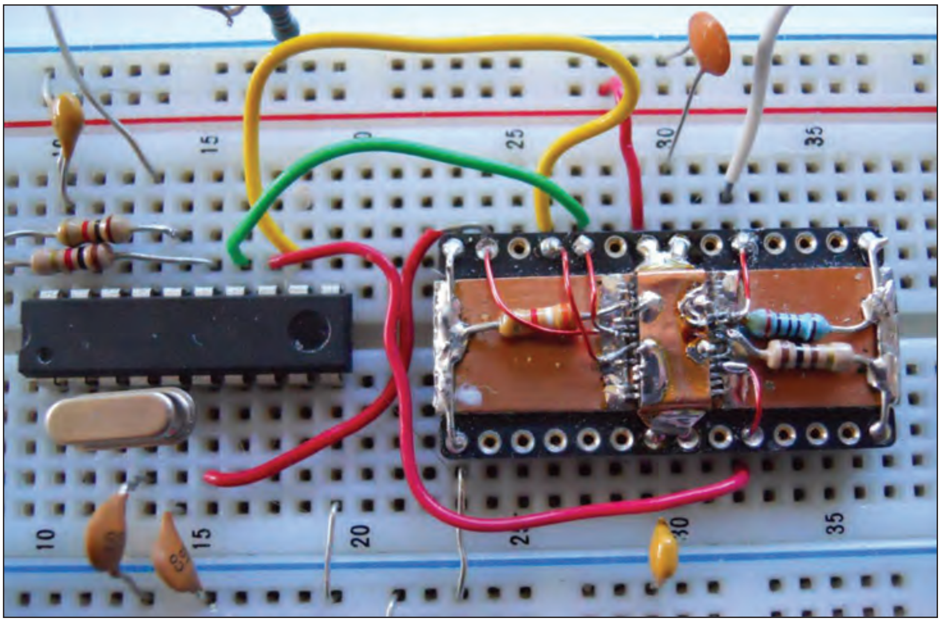


Figure 3: The DDS module and ATtiny2313A microcontroller mounted on a solderless breadboard. The microcontroller is on the left and the DDS module on the right. Just the pins of the AD9851 DDS chip are visible. The chip itself is sandwiched, upside down, between a piece of unetched circuit board and a thin copper strip passing over the top of the assembly. This photo was taken before the microcontroller programming was extensively revised to reassign the microcontroller's pin functions. Consequently, except for the clock output from the microcontroller, the connections shown in this photo do not match those in the circuit diagrams of Figures 2A and 2B.

loaded this new word into the AD9851. Thus each time the switch closed or opened the output frequency would change by a defined amount – in this case, 10 Hz. Instead of using a wire for the switch, as I did, a mechanical encoder could be used instead.

THE OPTICAL ENCODER

Like G3XJP, however, I chose to use an optical encoder like the one described in Application Note AN-557 rather than a mechanical switch. My friend Graham Maguire, VE7ZMR, had given me a section of a large tape deck. This piece had two very smooth turning, heavily weighted shafts mounted in an aluminum casting. I removed all the extra mechanical sections and cut through the casting with a hacksaw so as to separate the housings for the two shafts. One of these housings and its included shaft became the foundation on which my optical encoder is built. All that was needed in addition was a photocopied transparency of the slot encoder disc from AN-557, an aluminum disc to hold the slot encoder firmly in place and a bent aluminum channel to hold an IR diode and phototransistor on opposite sides of the slot encoder disc. You can see a close up of the resulting optical encoder in Figure 5 where it is hooked up to the microcontroller. Turning the dial clockwise increases the frequency whereas with anti-clockwise movement the frequency decreases.

Software, electrical and mechanical problems took a lot of time and experimentation to overcome. The sensor I used provides two outputs. One gives the direction of turning, the other provides pulses corresponding to light to dark or dark to light transitions. The software produces a change of frequency for each of these transitions, adding the appropriate amount to the DDS's digital word for each clockwise transition and subtracting the same amount for each anti-clockwise transition. Electrical problems were caused by the IR LED – I found that the value of the resistor in series with this LED was important. With too small a value, the LED was too bright so that only solid opaque objects would provide consistent light-dark transitions. By experiment I found that a 1 k ohm resistor worked well and provided consistent operation with the photocopied slot encoder disc. Finally, as you might expect, adapting all the mechanical bits so as to get them all working smoothly together required quite a lot of trial and error. I am now really pleased with the very smooth and consistent operation of the optical encoder.

OUTPUT - LOW PASS FILTER AND AMPLIFIER

The next step was to make a low pass filter and amplifier. For the low pass filter I copied the circuit from Analog Devices Application Note AN-557. This low pass filter is also the same as that provided in the AD9850 data sheet. I scanned this filter with a Marconi TF2370 spectrum analyzer and found it to have a cut-off frequency of 41 MHz.

In place of the 2N3866 amplifier used in Application Note AN-557, I made a feedback amplifier using a 2N3904. In designing this amplifier I followed the very helpful information provided in *Experimental Methods in RF Design*. The 2N3866 is capable of handling much more power than the 2N3904, nevertheless I found that the much more readily available 2N3904 works just fine and provides a measured gain of about 24 dB. You can see all these parts in breadboard form in Figure 5.

At this point I was quite anxious to try out the DDS VFO to see if it worked. I have a Kenwood TS-520S that has provision for an external VFO through a 9-pin socket on the back of the radio. I connected the DDS VFO to the input pin (pin 1) of the TS-520S external VFO socket. With the DDS programmed to start at 5.4 MHz, I then adjusted the DDS frequency up and down from there to tune the TS-520S 4.9 to 5.5 MHz VFO frequency range. Except that I had no frequency readout as yet, it was very gratifying to be able to tune across an Amateur band and receive SSB and CW signals without any problems.

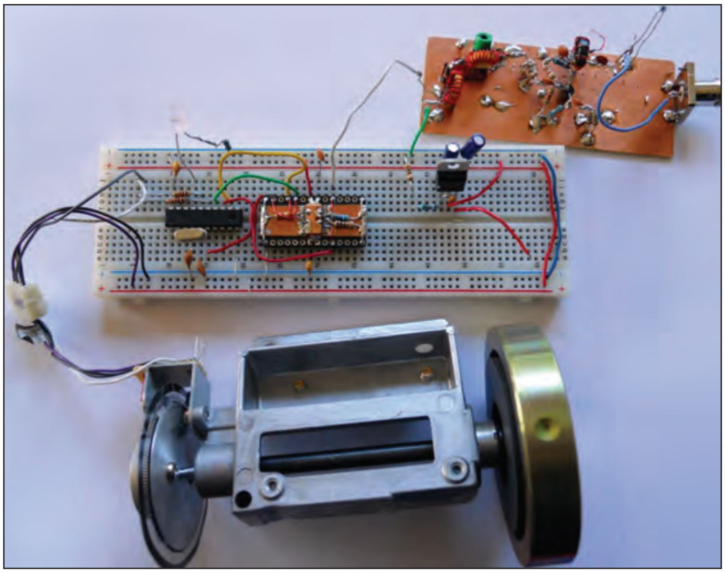


Figure 5: The optical encoder, microcontroller and DDS module. At the top right in very "ugly" construction is the low pass filter and RF amplifier module.

FREQUENCY DISPLAY

I chose to use seven-segment LEDs for the frequency display. An alternative which would also work well, be more power efficient and require less circuitry would be to use an LCD display. I like the brightness of the LEDs, however, so this is what I used.

I began working with the breadboarded DDS VFO with just one seven-segment LED. Once I had that working I reconstructed the VFO circuitry in a more permanent form and then added the rest of the display LEDs. You can see the result in Figures 6A and 6B on the next page.

The six digits of the display are multiplexed – only one is lit at a time but the cycle time from one digit to the next is too short for us to see. Which digit is lit at any one time is selected by a CD4051 1 of 8 decoder. Three input connections to the CD4051 determine which of this IC's eight outputs is selected. The ATtiny2313A microcontroller provides these three inputs. Only six of the outputs are needed, one for each digit of the display.

Another IC, a CD4511 binary coded decimal to seven-segment LED driver, is used to provide output to the appropriate segments of the individual LED displays. This IC requires four inputs (from the microcontroller) to generate the seven outputs required by the LED displays. Thus, in total, the display requires seven of the microcontroller's pins. You can see the circuitry required for the display in Figure 6B, and the circuit diagram for it in Figures 2A and 2B.

RESULTS

A scan of the DDS VFO's output on a Marconi TF2370 spectrum analyzer is shown in Figure 7 on the next page. You can also see harmonics of the fundamental and harmonics of the 20.48 MHz microcontroller clock frequency in the spectrum. I think these must be produced in the AD9851's frequency multiplication process. For the purposes for which I plan to use this VFO, none of these harmonics should be a problem because they should be removed by other filters in the equipment. Low level spurs could cause problems, but in spite of them I think the DDS VFO would be at least as good as VFOs in any other equipment I have.

I measured the frequency stability of the VFO by placing it in a cooler along with a small lamp with which I raised the temperature. A 30 ° Celsius temperature rise caused a frequency change of about 20 Hz. I think this is a good result that could probably be improved by constructing a separate crystal oscillator instead of using the microcontroller's oscillator, something I hope to try soon.

A single-pole, single-throw (SPST) switch connected to one of the microcontroller pins was added so as to provide two different tuning rates. In one position the frequency change is 10 Hz per transition; in the other position the rate is 100 Hz per transition. A keypad would be a nice addition and is something I plan to incorporate. In addition, I plan to use the microcontroller's EEPROM to store the last used frequency on each band. Both modifications would make frequency changes faster and easier.

With all the circuitry and mechanical parts of the DDS VFO securely mounted in an enclosure, I once again tried connecting it to my TS-520S transceiver. I found it worked really well, and I was very pleased to be able to have a QSO with Ralph, VE7OM, while using the TS-520S running from the external DDS VFO.

CONCLUSION

If you compare the features possible with a DDS VFO that I described in the Results above, you will realize that I have not yet managed to include all the features I would like. An easy way to get these features, and more, would be to purchase (for not much more than $100) one of a number of kits or fully constructed units available. In addition, some kits use more up-to-date DDS ICs and therefore offer better performance than is available with the AD9851. I learned a great deal from the experimentation involved in this project, however, and I feel that it was worth the effort involved in design, programming and construction.

Part way along in my project I discovered that AD9850 modules that include a mounted AD9850 and 125 MHz crystal oscillator are available for purchase on the Internet for about $10. One of these – and slight modifications to the program for this project to accommodate the different oscillator frequency – could provide the basis for a VFO or signal generator that would be relatively easy to construct. My program is available on the RAC website.

Application Note AN-557 was a real inspiration to me. I hope this article may encourage others to review that reference and to experiment with these remarkable DDS integrated circuits.

A few words from the author: *I have had the call sign VE7BQO since 1964 and since that time Amateur Radio has been an important influence on my life. It has been a pastime from which I have learned a great deal and through which I have met many very fine people.*

Presently, I am really enjoying retirement and the increased opportunity to learn and experiment. I especially enjoy CW and QRP portable operation but I also find so many fascinating aspects to Amateur Radio that I know I will never run out of new things with which to experiment. Visit http://wp.rac.ca/tca-content/ for more information.

Note: *Allen is also TCA's newest columnist (see page 26)*

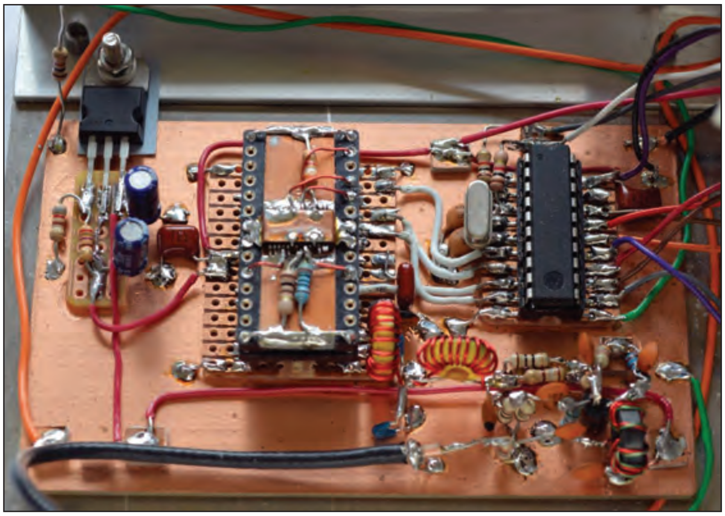


Figure 6A: The main circuit board with power supply, DDS, microcontroller, low pass filter and amplifier.

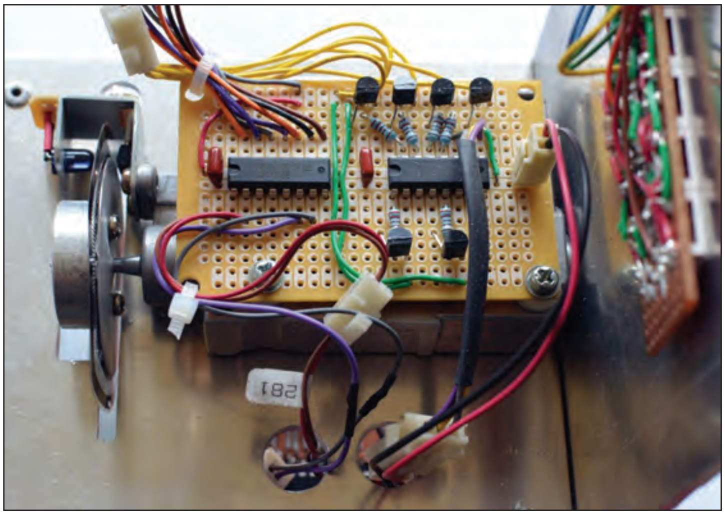


Figure 6B: The optical encoder and display circuitry. The main circuit board is located in the section below. Seven-segment LEDs are to the right.

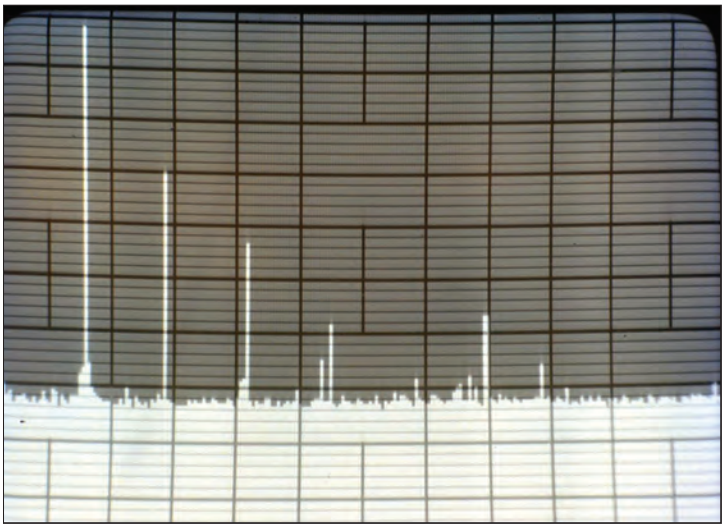


Figure 7: Marconi TF2370 spectrum analyzer scan from 0 to 60 MHz of the VFO output. The lines to the right are harmonics of the 20.48 MHz clock frequency. Vertical scale: 10 dB/div; Horizontal scale: 5 MHz/div.

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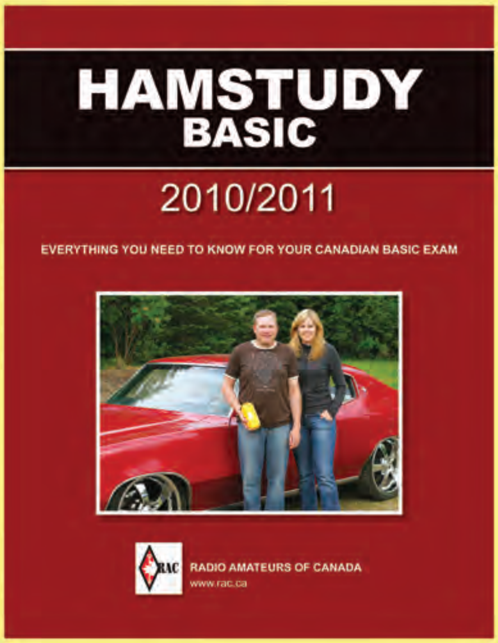

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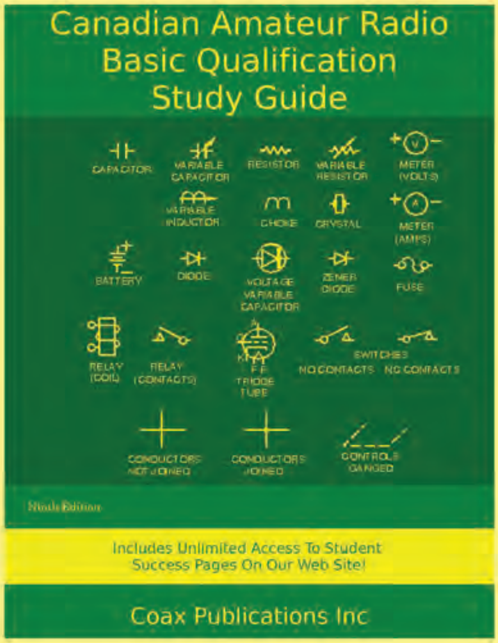

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FRESH ON THE AIR

– ADVENTURES FOR THE NEW AND BEGINNING HAM

Accessories for Handhelds...

Phillip Boucher, VE3BOC
E: phillipjboucher@gmail.com
www.phillipjboucher.com

Handheld's (HTs) have always been the dominant radios of choice for most new Amateurs. They are relatively inexpensive and extremely portable, and can be conveniently carried with you everywhere you go.

But there is more to an HT than just the radio itself. Although totally self-contained, modern handhelds have the ability to use a number of add-on accessory items to enhance everyday radio operations.

Handheld accessories are designed to enhance the capabilities or usefulness of your radio. They allow you to use your radio longer, in extreme environments, or more conveniently. The addition of accessories does not have to be expensive as aftermarket items are readily available online or at your local radio shop.

Speaker Mics:
A combination speaker/microphone unit, sometimes just called a "speaker mic", contains both a microphone and a speaker in one housing. The speaker mic allows you to wear your radio on your belt or in a pocket, have it mounted in your vehicle, or stationary at home on a bench or at your desk, so that the radio is out of the way and the speaker mic is the only thing that you need to hold and use. The bulk of the radio is situated away from you and it remains in a fixed place. Throat mics, earplugs and headsets are other types of speaker mics that provide even more convenience in that you don't need to hold anything in your hand – especially if you are using VOX (Voice Operated Transmit.)

Antennas: There are many aftermarket antenna designs for handheld radios that either reduce the footprint of your radio – by using a smaller antenna but sacrificing transmit and communication range – to longer antennas that add bulk to your radio but provide maximum communications range. There are magnetic mobile antennas to mount on your vehicle to use your HT as a mobile rig. You can even find public service style speaker mics that use a built-in (or removable) antenna that get the antenna off the radio and up higher for better range.

Battery Packs and AA/AAA Cases: Most modern Amateur handhelds come with small compact Lithium Ion battery packs. These rechargeable packs provide a fairly good length of operating time. However, when these packs become depleted, they must be recharged and if you don't have a rapid charger, you could be waiting for hours. Your radio is effectively unable to be used when the battery is recharging. You could always order another battery pack and keep both packs charged, replacing one when you have to recharge the other. However, battery packs are thin and lay flush in the radio, making the radio very compact. On the other hand, AA and AAA battery cases can add a large amount of bulk to a handheld. The advantage of the battery cases – even those that provide only a minimum milliwatts worth of transmit power over the LiIon packs – is that the battery cases can be loaded and installed very quickly by getting batteries form any store. This keeps the radio constantly available for use in emergencies.

Waterproof Bag/Case Cover: These protect your radio from rain and snow and allow you to use your rig in severe weather conditions or in areas of water such as on or around rivers, ponds and lakes. These seal very tight and give good protection, but some may not be flexible enough to allow you to change channels or other radio parameters while in the bag.

Cases: HT Cases are designed to protect your radio from everyday wear and tear that may cause the graphics on the buttons to rub off, or from anything that may scratch your case or display. There are many types of cases available, even tactical style cases that let you sling the radio over your chest for Search and Rescue operations.

Belt Clip: Replaceable belt clips come in various designs such as quick release or solid grip. Many Amateurs like to replace the rather delicate belt clips that come with their radio with a more rugged version as many stock clips that come with the radio break fairly easily.

Programming Cable/Software: Programming cables and software let you set up all the channels and operating parameters on your rig via a computer rather than by the tedious method of doing it manually. There are both commercial and free versions of software and each has its own pros and cons. But for inputting a lot of repeater information and radio options, most Amateurs opt for doing it by computer.

12V Car Adapter: Many new Amateurs like to use their handhelds in their car, and combine a speaker mic with a magnetic mount antenna to achieve a semi-mobile setup. They also add a 12 volt power adapter that plugs into the cigarette lighter (or Aux Power port) and their radio. The HT acts like a 5 watt mobile transceiver, the power adapter saves on batteries, the magmount antenna gets the signal out of the inside of the car, and the speaker mic makes it much easier and safer to talk while driving (in jurisdictions that have an Amateur Radio exemption.)

Don't think you have to use your handheld radio the way it is. By adding some accessories, you can turn that simple handheld into a communications powerhouse!

Transmission Tidbit:

Did you know that actor/comedian Tim Allen, star of Last Man Standing, just got his Ham ticket? If you ever get a chance to QSO Tim, KK6OTD, let us know.

What unique features do you like and use on your radio? What bells and whistles do you wish Amateur Radio manufacturers would put on rigs? If you could have the ultimate Amateur Radio handheld unit, what would it look like, how would it work, what fantastic things would it have and do? I'd like to know your thoughts on this topic. Write me via the magazine; email me at phillipjboucher@gmail.com or via my website at www.phillipjboucher.com. It's here! It's here! "The Almost Complete Guide to Yaesu's VX-6R" is now available in PDF for $14.95. Visit http://www.phillipjboucher.com to order. It's also available in Epub at Amazon Kindle.

Newfoundland Labrador Hamfest 2014

Charles Marsh, VO1VZ

On Saturday, September 6, 45 Amateurs along with 27 XYLs gathered at the Masonic Lodge in Gander for the first Newfoundland and Labrador Amateur get-together in 20 years.

After registration in the morning, six afternoon sessions were available covering topics from contesting to the correct method of soldering PL259 connectors and everything in between.

The evening consisted of a BBQ prime rib steak dinner with all the fixings, a musical presentation by a Ham Band and ended with a dance.

Sunday morning concluded the hamfest with a buffet breakfast before everyone headed for home.

A sincere thank you goes out to Ira Stacey, VO1IRA, the event Committee Coordinator and the rest of his committee, the Amateur Radio Club of Newfoundland (ARCON), for sponsorship, the presenters during the afternoon, everyone who provided prizes, the band members and Derek, VO1YE, for his DJ services.

A great time was had by all. There were multiple door prizes such that every Amateur got at least one.

The camaraderie was exceptional, especially with putting a face to a voice for the first time.

With too many individuals to thank individually for fear of omitting someone, a big thank you to all involved.

Plans for another in a few years is testament to the success of this one.

Clockwise from top: The Ham Band entertaining the crowd; Hamfest coordinator Ira Stacey, VO1IRA, and surprise visitor Jean Pierre Carrere, FP5CJ, from St. Pierre; Paul Burggraaf, VO1PRB, makes a presentation about Radio Amateurs of Canada; Items from the Swap Shop/Fleamarket; Chatting between presentations; Gus Samuelson presenting on contesting; and enjoying the BBQ prime rib steak dinner.

PUBLIC SERVICE / ARES

The Amateur Radio operators in the province of New Brunswick have always been progressive when it comes to bringing Amateur Radio awareness to served agencies in their community. Given the significant achievements, as outlined in this column, represents several years of staying focused, along with the required coordination, installation and cooperation between all parties. This is a real feather in everyone's cap who were involved in bringing this to fruition.

The technical members of the Manitoba Repeater Society are to be commended for bringing about the necessary maintenance work to keep the repeater systems readied for emergencies. My hat goes off to longtime friends Yorimasa "Yori", VE4ACX and Derek Hay, VE4HAY, along with Harold Seddon, VE4AJO, for braving the severe winter elements. The reliance on these systems will come more apparent when the call goes out to the ARES members, who surely will require flawless communications.

"A reminder, next year the Grey Cup is in Winnipeg, hi hi" to all Winnipeggers, just a gentle reminder that the Grey Cup is now in Calgary!

The October SET 2014 was a huge success with many ARES groups in Canada making a great showing with their prepared simulations, and the many ARES members participating on the day. Let us make it even bigger and better in 2015!

– Ken Oelke, VE6AFO, RAC National Emergency Coordinator

NEW BRUNSWICK HEALTH AUTHORITIES AND INTERNATIONAL REPEATER GROUP CONDUCT AMATEUR RADIO FAMILIARIZATION EXERCISE

Submitted by Francis Pitre, VE9FCP and Al Thurber, VE1AKT

The New Brunswick Department of Health along with the two health authorities – the Vitalité Health Network and the Horizon Health Network – in collaboration with the International Repeater Group (IRG) participated in the first province-wide Amateur Radio familiarization exercise on September 17, 2014. This familiarization exercise was specifically designed to expose the Amateur Radio operators in the province to the hospital Amateur Radio network, and to provide an opportunity to test the capabilities of the IRG infrastructure.

BACKGROUND

About seven years ago, a presentation was made to the New Brunswick Health Emergency Management Committee. Its purpose was to explain the capability of the Amateur Radio community in the province to provide emergency communications when needed.

Over the years plans slowly evolved to install Amateur Radio stations in each hospital in the province. This was a slow process as funding was limited.

The Department of Health purchased several VHF radios while others were donated.

Many commercial radios needed to be programmed, and with the assistance of the Department of Transportation and Infrastructure and several individuals this was accomplished. A few radios were also donated to the project by Cumberland County, Nova Scotia. Most radios were installed by volunteer Amateur Radio operators while a few were contracted to be installed. The bottom line is that we now have 100 percent of the hospitals in the province equipped with an Amateur Radio station.

The main backbone of the system is the provincial Amateur Radio system called the International Repeater Group. Thanks to the support of the New Brunswick Emergency Measures Organization (NB EMO), the Department of Public Safety, Environment Canada and the membership of the IRG, we have a very robust Amateur Radio system.

We are capable of providing VHF Amateur Radio stations in the province with an opportunity to connect to similarly equipped Amateur Radio stations in the province. We even have a link to a system in Nova Scotia, Prince Edward Island, the eastern parts of the State of Maine and also to some areas of Quebec.

To this end on June 5, 2013 a memorandum of understanding (MOU) was signed between the International Repeater Group and the Department of Health. This MOU provides that volunteer Amateur Radio operators will operate the Department of Health's Amateur Radio equipment, under the direction of the Emergency and Pandemic Planning Unit in the event of an emergency that causes a failure of conventional telecommunications infrastructure.

DEPARTMENT OF HEALTH

The Province of New Brunswick has divided their system into eight zones which encompasses 20 hospitals.

The Emergency and Pandemic Planning Unit (EPPU) is a unit within the Department of Health that acts on behalf of the Minister of Health with respect to matters of health emergency management.

One of the key roles of the EPPU is to ensure that lines of communications between the Department, Regional Health Authorities, hospitals, police, fire, ambulance and other emergency services are maintained, even in the event of an emergency that causes a failure of the conventional telecommunications infrastructure.

THE EXERCISE

The net control station for this familiarization exercise was VE9DOH located at the Department of Health's office in HSBC/Carleton Place in downtown Fredericton. The Net Controller was Al, VE1RG, assisted by Sterling, VE9SK. Also present was Cathy Goodfellow, the Director Emergency Preparedness and Response for the Department of Health, and Caroline Galvin, Project Coordinator for the Emergency Preparedness and Response Branch.

A call was made to each individual hospital, requesting the names of the Amateur Radio operators present and the name and title of any health employees present.

Participating in Zone 7

Miramichi Regional Hospital in Miramichi City, VE9HRM: VE1DAB, VE9RG

Participating in Zone 6

Hôpital de Tracadie-Shelia, VE9HTS: VE9KW, VE9WE

Chaleur Regional Hospital in Bathurst, VE9HRC: VE9FCP, VE9MOE, VE1MLS

Participating in Zone 5

Campbellton Regional Hospital, VE9CRH: VE9DEN, VE9ADR, VE9MTC, VE9ARM

Participating in Zone 4

Hôpital de Grand Sault, VE9HGS: VE1KIT

Hôpital de Saint Quentin, VE9HSQ: VE9JSD

Hôpital Régional d'Edmundston, VE9HRE: VE1PIN, VE9RMO

Participating in Zone 3

Perth Andover Hospital, VE9PAH: VE9GM

Upper River Valley Hospital in Waterville, VE9RVH: no operator was present during the exercise

Dr. Everett Chalmers Regional Hospital in Fredericton, VE9DCH: VE9RPF, VE9NKD.

Oromocto Public Hospital, VE9OHP: VE9CD, VE9KK.

Participating in Zone 2

Charlotte County Hospital in St. Stephen, VE9CCH: VE9MTB

Grand Manan Hospital, VE9GMH: no operator was present during the exercise

St. Joseph's Hospital in Saint John, VE9HSJ: VE9JMG, VE9XMQ.

Saint John Regional Hospital, VE9SRH: VE1ASE, VE9CDL, VE9SY

Sussex Health Center, VE9SHC: VE9SDH, VE9DAZ, VE1ANL

Participating in Zone 1 Beauséjour

Hôpital Stella Maris de Kent in Ste. Anne, VE9HSM: VE9XAB, VE9JCT

Centre Universitaire George L Dumont in Moncton, VE9HGD: VE1VON, VE9CEL, VE9BK

Participating in Zone 1 Southeast

Sackville Memorial Hospital, VE9SMH: VE1KW, VE9TER, VE9TTT

The Moncton City Hospital, VE9TMH: VE9MCD, VE9JJS, VE9AA

On behalf of the New Brunswick Department of Health, the Vitalité Health Network, the Horizon Health Network and the International Repeater Group, a most sincere "Thank You" goes out to all of the Amateur Radio operators who participated in this inaugural test of the Department of Health's Amateur Radio system and who remain committed to being part of the response team in support of our health care system.

"A Day Well Spent on the Canadian Prairie"

Derek Hay, VE4HAY
Manitoba Repeater Society

Members of the Manitoba Repeater Society technical crew – Yorimasa Tsuji, VE4ACX, Harold Seddon, VE4AJO and Derek Hay, VE4HAY – spent the day on Grey Cup Sunday, repairing some of the Manitoba Repeater Society radio systems before the snow became too deep to access the remote sites.

The day started at sunrise with a two-hour drive, up to what may be the third highest bump on the Manitoba flat prairie, to service the VE4MRS repeater near Bruxelles.

Arrival at the site showed –24 degrees with an extreme cold warning and –33 windchill.

On the way back home we stopped at the VE4PLP repeater near Portage la Prairie to reinstall a duplexer and a VHF radio.

And finally we stopped at the VE4MAN repeater site near Starbuck for a checkup only.

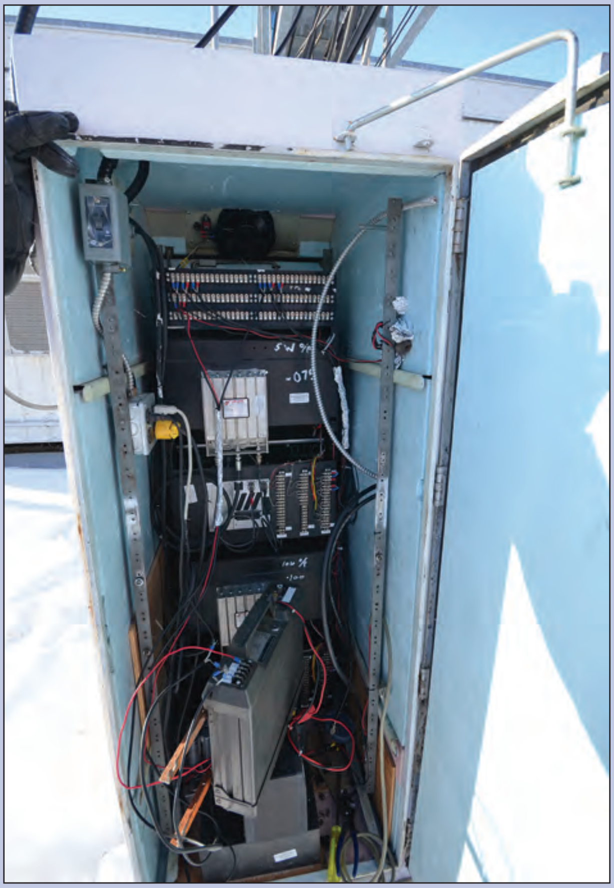
By this point the temperature had warmed up to –20 degrees with a –31 windchill.

We arrived back in Winnipeg just in time to watch the kickoff of the Game.

A day well spent on the Canadian Prairie.

A reminder, next year the Grey Cup is in Winnipeg, hi hi.

Note: please see the article on page 18 for more information about the Manitoba Repeater Society.



THE SPORTS PAGE

— THE CANADIAN CONTEST SCENE

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SPORTS PAGE INFO:

The contest results provided in this column are courtesy of the Maritime Contest Club team:

Gary Bartlett, VE1RGB
Scott Nichols, VE1OP

For more contest information check out these sites:

http://www.hornucopia.com/contestcal/weeklycont.html

http://www.contesting.com

http://www.sk3bg.se/contest/

http://www.arrl.org/contests/calendar.html

http://www.arrl.org/contests/rate-sheet/about.html

http://www.cq-amateur-radio.com/awards.html

http://www.arrl.org/files/file/DXCC/2013%20DXCC%20Current_a.pdf

The “Contest Calendar” at the end of this column is presented as a guide only.

RAC and TCA do not necessarily endorse or support any of the contests or the accuracy of the information.

Bands: The 30, 17 and 12m bands are never used in any contest.

Back to the Beginning

Conditions in October 2014 were beyond exConditions in October 2014 were beyond all expectations. I was looking forward to the CQWW SSB contest but it was not to be. That weekend a nasty cold had me banned from the shack. It was a time to catch up on my reading however and out came two books capturing the earliest days of radio, *Two Hundred Meters & Down: The Story of Amateur Radio* by Clinton B. DeSoto, published in 1936 and *Marconi’s Atlantic Leap* by Gordon Bussey published in 2000.

Do you remember running across a station signing 2SZ in October? I tried to log “2SZ” and my software would not recognize it as a valid Amateur call sign. Of course it was a valid call from the standpoint of the call sign block 2AA to 2ZZ belonging to the United Kingdom. I had to add a “g” to keep my computer happy, thus “g2SZ” was logged.

1924, 90 years ago, was a very big year for Amateur Radio. Both Spark and CW were setting distance records including the record contact between that g2SZ at Mill Hill School in the United Kingdom and z4AA in New Zealand. The previous year an understanding was reached to distinguish between such as “1AB” in the United States and “1AB” in Italy.

Many countries started to use the first letter of their country’s name, giving, in this instance, u1AB and i1AB. In Europe a certain amount of distinction had already taken place due to the proximity of so many different authorities.

The numeral “1” occurred in Italian calls, “2” in the United Kingdom calls, “8” in French calls, “9” in Swiss calls, for example. (All Italian stations had “I1” right up into the1960s, Swiss calls HB“9” until even more recently!) In Canada calls of note included c1BQ in Halifax, c3BP in Newmarket and c9BP in Prince Rupert.

Another highlight occurred In July of 1924, when the US administration issued new licences covering a spectrum of High Frequency bands, 75 to 80m, 40 to 43m, 20 to 22m, and 4 to 5m. The use of frequency designation was not yet used to any extent but if you check the Table on the right for 40 to 43m and 20 to 22m, it certainly looks good compared to the present day! Until this time Amateur operation had been largely restricted to 150 to 275m, with special permission from time to time down to 100m.

It is interesting to note that many of the first distance records were made using these 100m shorter wavelengths. The move to such wavelengths was to keep clear of the predominantly Spark activity down the spectrum where bandwidths of 100m were the norm! Not a lot of thought was as yet given to what different kinds of propagation might exist. The standard model for propagation at 200m and longer wavelengths was a ground wave model where vertically polarized waves gradually attenuated with distance, with maximum distance achieved by using bigger antennas and higher power.

WAVELENGTH		FREQUENCY
4m	=	75 MHz
5m	=	60 MHz
20m	=	15 MHz
22m	=	13.6 MHz
40m	=	7500 kHz
43m	=	7000 kHz
100m	=	3000 kHz
150m	=	2000 kHz
200m	=	1500 kHz
275m	=	1090 kHz
377m	=	820 kHz

Marconi was the one who believed that radio waves could travel for very long distances with or without the propagation theory to prove it. He went ahead and actually conducted the experiments!

Of particular note was the 1912 transatlantic reception of signals from Poldhu in Cornwall to Signal Hill in Newfoundland. This was not a QRP setup. At the time the Poldhu station was considered to be 100 times more powerful than any previous station. Starting with a 32 Horsepower oil engine, 20,000 volts was produced and fed a bank of condensers which discharged into a spark-gap then coupled to RF transformers and thus to the antenna system. The transmitting antenna was an inverted cone of wire fed at the bottom centre, and supported by 20 wooden towers, each 200 feet in high. This antenna was very broadband and could radiate over a very wide range of wavelengths.

CONTEST CALENDAR FOR JANUARY, FEBRUARY AND EARLY MARCH 2015

Contest Name	Start	End	Web Address
SARTG New Years RTTY	0800z Jan 1	1100z Jan 1	http://www.sartg.com/
ARCI Pet Rock Sprint	1500z Jan 3	1800z Jan 3	http://www.qrparci.org/
ARRL RTTY Roundup	1800z Jan 3	2400z Jan 4	http://www.arrl.org/rtty-roundup
NA QSO Party CW	1800z Jan 10	0600z Jan 11	http://www.ncjweb.com/
Hungarian DX Contest	1200z Jan 17	1159z Jan 18	http://www.ha-dx.com/HADX/
NA QSO Party SSB	1800z Jan 17	0600z Jan 18	http://www.ncjweb.com/
NAQCC Sprint	0000z Jan 22	0400z Jan 22	http://naqcc.info/
ARRL VHF Sweepstakes	1900z Jan 24	0359z Jan 26	http://www.arrl.org/january-vhf
ARCI Winter Fireside SSB	2000z Jan 25	2359z Jan 25	http://www.qrparci.org/
BARTG Sprint RTTY	1200z Jan 24	1200z Jan 25	http://www.bartg.org.uk/sprintcontest.asp
CQ 160m CW	2200z Jan 23	2200z Jan 25	http://www.cq160.com/rules.htm
REF Contest CW	0600z Jan 24	1800z Jan 25	http://concours.ref-union.org/contest/
UBA DX SSB	1300z Jan 31	1300z Feb 1	http://www.uba.be/en/hf/contest-rules/uba-dx-contest-rules
NCJ Sprint CW	0000z Feb 8	0359z Feb 8	http://www.ncjweb.com/
MN QSO Party	1400z Feb 7	2400z Feb 7	http://www.w0aa.org/index.php/mn-qso-party
Delaware QSO Party	1700z Feb 7	0100z Feb 8	http://www.fsarc.org/DEQSO.html
10-10 Int. Winter SSB	0001z Feb 7	2400z Feb 8	http://www.ten-ten.org/
Mexico Int. Contest RTTY	1800z Feb 7	1759z Feb 8	http://www.rtty.fmre.mx/english/rules.html
BC QSO Party	1600z Feb 7	0359z Feb 8	http://www.orcadxcc.org/bcqp.html
NAQCC Sprint	0000z Feb 11	0400z Feb 11	http://naqcc.info/
Dutch PACC Contest	1200z Feb 14	1200z Feb 15	http://www.dutchpacc.com/
FISTS Winter Sprint CW	1700z Feb 14	2100z Feb 14	http://www.fists.org/operating.html#sprints
CQ WW WPX RTTY	0000z Feb 14	2400z Feb 15	http://www.cqwpxrtty.com/
REF Contest SSB	0600z Feb 21	1800z Feb 22	http://concours.ref-union.org/contest/
ARRL Int. DX CW	0000z Feb 21	2400z Feb 22	http://www.arrl.org/arrl-dx
CQ 160m SSB	2200z Feb 27	2159z Mar 1	http://www.cq160.com/rules.htm
UBA DX CW	1300z Feb 28	1300z Mar 1	http://www.uba.be/en/hf/contest-rules/uba-dx-contest-rules
NA QSO Party RTTY	1800z Feb 28	0600z Mar 1	http://www.ncjweb.com/
NC QSO Party	1500z Mar 1	0059z Mar 2	http://rars.org/ncqsoparty/
ARRL Int. DX SSB	0000z Mar 7	2400z Mar 8	http://www.arrl.org/arrl-dx
HF Grid Square Sprint	1500z Mar 7	1800z Mar 7	http://www.qrparci.org/
NCJ Sprint RTTY	0000z Mar 15	0400z Mar 15	http://www.ncjweb.com/

Although actual measurements of wavelength were not conducted at this time, descriptions of the equipment used at the Poldhu transmitter site indicated that a wavelength of 377m was likely where the operation took place.

I could not help but compare the relentless progress of the early pioneers, including Marconi, to the present day operators on UHF and the microwave frequencies. In addition, that Poldhu station antenna would not look out of place in some of the multi-op stations in today's contests!

WRTC-2018 IN GERMANY

The organization for World Radiosport Team Championship 2018 was granted to a German group consisting of representatives of Deutscher Amateur Radio Club (DARC), Bavarian Contest Club (BCC) and Rhein Ruhr DX Association (RRDXA). Qualifying contests will be slightly smaller in number for 2018 but will start with the ARRL DX CW Contest in 2015 and end with the CQWW DX CW contest in 2016. For more information about WRTC-2018 as it is presented please visit http://www.wrtc2018.de/en/.

BE CAREFUL WITH THE CALENDAR

In the Contest Calendar provided above some of the contests are not on the traditional dates. For example, this is the first time I can remember that the REF and UBA contests are not back-to-back on the same weekends. Watch those month-to-month transitions in February and March!

73, Bob, VE3KZ

PLEASE SUPPORT OUR ADVERTISERS!

We would like to take this opportunity to thank our amazing advertisers for their continued support of The Canadian Amateur magazine, Radio Amateurs of Canada – and, of course, Amateur Radio in Canada and internationally. Many of our advertisers have supported TCA for over 10 years! Please let them know how much you appreciate their contributions by purchasing their products and services – and please tell that you have seen their ads in TCA!

MINNESOTA QSO PARTY

Call	QSO	Mult	Score	Category
VE5KS	131	65	17,030	SOLP
VE3CX	47	36	3,384	SOHP
VE3HED	38	31	2,356	SOHP
VE2AWR	41	26	2,132	SOLP
VE7NI	26	18	936	QRP
VA6NJK	20	19	760	SOHP
VE5ZC	14	12	336	SOHP
VE2HKW	15	11	330	SOHP
VE3RKM	15	10	300	QRP
VE7JH	13	10	260	SOLP
VE9ML	10	8	160	SOHP
VA7ODX	6	5	60	SOHP
VE2PIJ	1	1	2	SOHP

ARRL RTTY ROUNDUP

Call	QSO	Mult	Score	Class
VE7CC	2,246	128	284,928	SO(U) HP
VA2UP	2,089	121	250,954	SO LP
VE4EAR	1,537	98	149,058	SO HP
VE3CX	1,236	116	142,680	SO HP
VE5MX	1,201	119	141,729	SO(U) HP
VE3KI	1,104	112	123,088	SO HP
VE7SZ	1,368	90	121,590	SO HP
VA7KO	1,098	95	103,075	SO LP
VE2GSO	1,025	101	102,919	SO HP
VE2SG	917	102	92,718	SO(U) HP
VA7ST	953	94	89,018	SO LP
VE7IO	1,015	81	81,324	SO(U) HP
VE2EBK	756	97	71,877	SO(U) LP
VA7AM	823	77	61,600	SO LP
VE3IAE	636	97	60,819	SO LP
VE6BMX	815	72	58,248	SO LP
VA7RY	706	82	57,236	SO(U) LP
VA3XH	611	93	56,358	SO HP
VE3FH	547	92	50,232	SO LP
VE2AXO	561	89	49,484	SO LP
VE2FK	577	81	46,413	SO(U) HP
VE1OP	460	94	42,864	SO(U) HP
VE3CGR	479	87	40,977	SO(U) LP
VE3MGY	598	69	40,296	MO LP
VE3DZ	441	90	39,240	SO LP
VA3SB	451	86	38,098	SO LP
VE3TW	466	80	36,400	SO LP
VE5KS	443	82	35,670	SO LP
VE3CV	397	84	33,096	SO LP
VE3NRT	413	79	31,916	SO LP
VE6QO	511	62	31,310	SO LP
VE2LX	376	86	30,444	SO LP
VE7SAR	340	75	25,050	MO LP
VE6SQ	437	58	24,824	SO LP
VE2NMB	330	74	23,680	SO(U) HP
VE2EZD	342	70	23,590	SO LP
VE3KAO	281	83	23,240	SO(U) LP
VE3HG	306	76	23,180	SO LP
VE9AA	302	71	21,371	SO LP
VE3JI	304	68	20,264	SO LP
VE3XAT	256	80	20,080	SO(U) LP
VE3GYL	257	74	18,722	SO LP
VA5LF	325	55	17,765	SO LP
VE7AX	244	71	17,253	SO(U) HP
VE1ZA	241	71	16,685	SO LP
VE9BWK	213	73	15,184	SO LP
VA3DX	199	74	14,430	SO(U) HP
VE3VSM	217	64	13,760	SO LP
VE3RCN	214	63	13,293	SO LP
VE2FFE	199	57	11,172	SO LP
VE6AMI	153	59	8,909	SO LP
VA3EC	141	56	7,840	SO LP
VE9HF	124	57	7,068	SO HP
VE7WJ	138	45	6,030	SO LP
VA7AQD	132	45	5,940	SO LP
VA3IK	126	48	5,904	SO LP
VY2LI	106	49	5,194	SO HP
VA3FN	95	46	4,278	SO LP
VE3IBW	104	40	4,000	SO LP
VE7BC	66	34	2,176	SO LP
VE3JAQ	63	36	2,160	SO LP
VE2KOT	59	31	1,798	SO LP

VA7MM	48	25	1,200	SO LP
VY0/VE3VID	40	27	1,026	SO LP
VA7ZM	29	19	551	SO LP
VE3EIB	28	19	494	SO LP
VE6FN	23	19	437	SO(U) HP
VE7BGP	29	14	392	SO LP
VE7QC	21	18	378	SO LP
VA7MAY (@VA7MM)	32	12	360	SO LP

HUNGARIAN DX CONTEST

Call	QSO	Mult	Score	Category
VE9ML	182	63	64512	SOAB MIX LP
VE3UTT	107	30	14160	SOAB CW HP
VA3ATT	91	31	10943	SOAB CW LP
VE3XAT	65	27	9423	SOAB MIX LP
VE9HF	128	16	7104	SOAB CW HP
VE2AWR	57	17	3451	SOAB MIX LP
VE9BWK	60	14	2926	SOAB MIX LP
VA2ES	54	16	2832	SOAB CW LP
VE2FK	43	13	2340	SOAB CW HP
VE3FH	43	13	1820	SOAB CW LP
VE3KAO	29	8	808	SO40 CW LP
VA3RKM	20	8	680	SOAB MIX QRP

ARRL INTERNATIONAL DX CONTEST CW

Call	QSO	Mult	Score	Class	Power
VE3JM	5204	564	8,705,340	M2X	
VA2WA	3871	516	5,948,964	SAH	C
VY2TT (K6LA, op)	4194	437	5,418,363	S	C
XL3A (VE3AT, op)	3843	451	5,173,872	S	C
VE3YAA	2303	432	2,941,920	MSH	C
VE7JH	2305	327	2,246,490	S	C
VE6RST	1888	399	2,222,829	SAH	C
VE9ML	1770	419	2,203,521	MSL	B
VE3OI	1830	318	1,717,200	S	C
VE9HF	1176	470	1,648,290	SAH	C
VA7KO	1271	349	1,302,468	SAH	C
VA2AM	1023	388	1,150,032	SAH	C
VA7DZ	1226	312	1,118,520	MSL	B
VE3TA	865	430	1,110,690	SAH	C
VE5ZX	1087	339	1,073,952	SAL	B
VA7OM	1157	300	1,014,300	S	C
VE7XF	1011	320	961,920	SAH	C
VE4VT (VE4EAR, op)	968	324	930,204	SAH	C
VE3GFN	1064	290	915,240	S	B
VE1RSM	965	304	865,488	S	B
VE3IAE	988	286	839,124	SAL	B
VE2AWR	905	275	740,025	S	B
VA7ST	921	229	629,292	S	B
VE3VN	808	256	611,328	S	A
VE3XAT	693	287	585,480	SAL	B
VE3TW	691	284	575,100	S	B
VY2ZM	1678	112	561,456	S10	
VE7IO	683	265	535,830	SAH	C
VE6WQ (@VE6JY, op)	1437	115	491,280	S15	
N2WQ/VE3	1383	118	487,104	S15	
VE2FK	690	237	485,613	SAH	C
VA3DX	595	276	482,724	SAH	C
VA3EC	751	215	481,170	S	B
VE3KAO	605	251	454,059	SAL	B
VE2EBK	561	279	451,980	SAL	B
VA2EU	585	267	450,162	S	B
VE2BWL	736	178	386,082	SAL	B
VE4YU	552	224	364,896	S	B
VE7KW	584	209	354,255	SAL	B
VA7MG	595	205	353,625	S	C
VE9AA	1158	99	340,362	S10	
VE7ACN	498	224	331,968	SAL	B
VE1ZA	606	184	329,544	SAL	B
VE2EZD	510	212	317,364	S	B
VE6LB	402	242	282,414	SAH	C
VA3ATT	438	193	247,812	S	B
VE3RSA	429	192	242,496	S	B
VE3MGY	440	186	236,592	SAL	B
VE3BVA	399	191	228,054	S	B
VA1MM	482	158	225,624	S	B
VE3NZ	482	156	221,364	SAL	B
VE3XB	372	193	214,809	S	B
VE7DS	353	198	208,494	S	B
VE1OP	380	176	197,472	SAH	C

VE1JBC	487	137	196,869	S	C
VE7JKZ	407	156	186,732	S	B
VE3JI	278	216	177,552	SAL	B
VE3HG	352	153	159,273	S	A
VE7VR	326	147	141,120	S	C
VE6AX	295	162	138,510	SAL	B
VE5VA	321	143	134,277	S	A
VA2EW	437	103	133,488	SAH	C
VA7XB	297	153	133,110	SAH	C
VA2BBW	266	170	131,580	SAL	B
VE5UF	419	99	124,146	SAH	C
VE2GHI	286	135	115,830	S	B
VE2KOT	295	122	106,506	S	B
VA3FN	244	137	98,229	S	B
VE3CR	354	88	92,400	S20	
VE2JR	287	102	87,822	S	B
VE2QV	241	123	87,453	S	B
VE3NRT	222	125	82,125	S	B
VE4AKF	239	113	81,021	S	C
VA6SP	206	129	78,174	S	B
VA3DF	175	151	77,010	SAL	B
VE3HEU	193	130	74,100	SAL	B
VE3RCN	196	113	65,427	S	B
VE9BWK	195	106	60,420	SAL	B
VE6EPK	213	97	58,200	S	C
VE3FH	255	76	57,912	S15	
VE3FJ	261	74	57,498	S15	
VE3DTI	187	94	51,888	S	A
VE9OA	253	70	51,450	S15	
VA2ES (VE2AXO, op)	172	101	50,298	SAL	B
VA3IK	192	89	49,662	S	B
VA3DBT	168	97	46,560	S	B
VA2SG	151	93	41,850	S	A
VA3RKM	143	101	41,814	S	A
VY2OX	212	64	40,320	S40	
VE3MIS (VE3CWU, op)	150	84	36,540	SAL	B
VE2SG	145	85	35,955	SAH	C
VE3NR	175	69	35,604	SAL	B
VE5KS	168	72	34,128	S15	
VE3TG	166	56	27,384	S40	
VA3PAW	116	79	26,781	S	B
VE3DQN	115	77	26,565	S	A
VE7MR	132	66	25,146	S40	
VE3VSM	107	79	24,885	S	B
VE1AYY	132	61	24,156	S20	B
VE3OSZ	146	54	23,490	S80	
VA7KH	106	70	21,210	S	A
VE3FU	106	63	19,845	SAH	C
VE3JSQ	108	64	19,200	SAL	B
VE3WZ	106	59	18,762	S	A
VE7BC	115	52	17,784	SAL	B
VE3KQN	83	63	15,687	S	A
VE3TAZ	108	49	15,435	S	B
VE3DVY	104	48	14,976	S10	
VE7BGP	80	63	14,931	S	B
VE4XT	81	63	14,742	S	B
VE3IGJ	99	46	13,386	S	B
VE7CA	93	46	12,558	SAH	C
VE3PN	81	41	9,348	S160	
VE3JAQ	94	33	8,613	S20	
VA7HZ	64	42	7,812	SAL	B
VE6SQ	61	41	7,503	S	B
VA7ZM	76	30	6,660	S	B
VE6BMX	63	29	5,394	S10	
VY2LI	54	29	4,611	S15	
VA3JLF	46	32	4,416	S	B
VA3DDX	21	16	960	SAH	C
VA7JC	10	8	240	S	A
VE7GM	3	3	27	S	B

NAQP JAN SSB

Call	QSO	Mult	Score
VE3CX	1042	211	219,862
VE4GV	1112	156	173,472
VE3MGY	746	147	109,662
VA7AM	713	143	101,959
VE3TW	525	157	82,425
VE4YU	416	167	69,472
VA7ST	505	128	64,640
VE3VSM	476	134	63,784
VY2LI	452	140	63,280
VE6BMX	428	112	47,936
VE9AA	309	128	39,552
VE9OA	333	87	28,971
VE5JZX	311	89	27,679
VE8GER	239	100	23,900
VE2AWR	246	96	23,616
VE3HG	214	103	22,042
VE3NRT	182	101	18,382
VO1KVT	206	69	14,214
VE3KTB	172	78	13,416
VE4DRK	156	82	12,792
VE3AD	126	72	9,072
VE3RCN	113	74	8,362
VE5MX	151	53	8,003
VE5UO	140	55	7,700
VE7NA	110	64	7,040
VE7SAR	123	56	6,888
VE4XT	100	53	5,300
VE9ML	92	43	3,956
VE3XAT	69	50	3,450
VE3AJ	85	40	3,400
VA3WU	76	41	3,116
VE5BCS	110	26	2,860
VA7MCP	63	45	2,835
VA4CAM	66	41	2,706
VA3EEB	68	38	2,584
VA1MM	60	42	2,520
VE3LJQ	60	31	1,860
VE3PQ	54	33	1,782
*VE3KJQ	53	33	1,749
*VA3RKM	47	37	1,739
VE3PYJ	44	26	1,144
VA3PAW	42	26	1,092
VA3OV	30	23	690
VE7QC	31	20	620
VE9HF	24	18	432
VE6SQ	16	12	192
VE9BWK	5	5	25
VE1ZA	3	3	9
VO2NS	1	1	1
VE3JAQ	4	0	0

*=QRP

BRITISH COLUMBIA QSO PARTY

Call	QSO	Mult	Score	Category
VA7ODX	884	365	867,970	MOLP MIXED
VA7NF	861	287	628,530	MOHP MIXED
VE7JR	396	174	181,716	MOHP MIXED
VE7SAR	542	156	169,184	MOLP SSB
VE7WJ	474	171	162,128	SOLP SSB
VE7CV	330	211	161,726	SOLP MIXED
VE7BC	353	107	76,398	SOLP MIXED
VE7DS	140	99	55,460	SOLP CW
VE7JKZ	129	85	43,880	SOLP CW
VE7JH	160	92	41,420	SOLP MIXED
VA7DZ	120	82	39,380	SOHP CW
VE7VR	188	92	35,368	SOHP MIXED
VA7OM	207	71	31,808	SOHP MIXED
VA7JW	239	52	24,856	SOHP SSB
VE7TJF*	151	73	22,086	SOLP SSB
VE7AX	127	68	21,828	SOHP MIXED
VA7QLT*	135	72	19,480	SOLP SSB
VE7BQO	70	66	15,768	SO QRP MIXED
VA7ST	75	46	13,800	SOHP CW
VA7GEM	75	39	11,700	SOLP DIGITAL
VE7QC	128	44	11,284	SOLP SSB
VE7GV	103	48	9,928	SOHP SSB
VA7BBG	61	48	5,916	SOLP SSB
VA7DER	37	38	5,396	SO QRP MIXED
VE5KS	46	41	5,348	SOLP MIXED
VA7YJJ	44	37	3,296	SOLP SSB
VE2ZT	30	26	2,868	SOLP MIXED
VE7BGP	31	32	2,688	SOLP MIXED
VE7CYU	38	31	2,396	SOLP SSB
VE7YL*	31	19	2,376	SOLP CW
VE7XDT	26	22	2,288	SOLP CW
VE9ML	27	26	1,984	SOLP MIXED
VE3VSM	28	24	1,740	SOLP MIXED
VE7FO	16	12	768	SOHP DIGITAL

VE2AWR	14	14	712	SOLP MIXED
VE4YU	16	15	670	SOLP MIXED
VE7GNR	22	15	660	SO QRP SSB
VE7NSR	10	15	490	SOHP MIXED
VE2HKW	13	12	352	SOLP SSB
VE3XBL	15	9	290	SOLP SSB
VE7TP	10	12	240	SOLP SSB
VY1XY	10	9	180	SOHP SSB
VE9AA	7	6	168	SOLP CW
VA3PCJ	6	6	160	SO QRP MIXED
VA3RKM	7	7	140	SO QRP MIXED
VA3FN	5	5	100	SOLP CW
VE7RIJ	7	6	84	SOLP SSB
VE7KW	4	7	84	SOLP MIXED
VE6QO	3	3	76	SOLP DIGITAL
VE1TWM	3	3	38	SOLP SSB
VE9BEL	1	1	4	SO QRP CW
VE3KJQ	1	1	2	SO QRP SSB

10-10 INT. WINTER CONTEST SSB

Call	Score
VE8GER	777
VA7TEN	415
VE5BCS	409
VA3GUY	213
VE6MRT	210
VE2KCA	135
VE5KM	92
VE2HAY	66
VE7GNR	50
VA7HZ	46
VE3MEW	38

NORTH AMERICAN FEB SPRINT CW

Call	QSO	Mult	Score
VE3JM	294	50	14,700
VE3KI	241	45	10,845
VE9AA	225	42	9,450
VE3CX	196	41	8,036
VE4EA	146	36	5,256
VE4XT	129	40	5,160
VE3RCN	46	25	1,150
VE3VSM	39	24	936
VA7JC	5	5	25

UBA DX CW

Call	QSO	Mult	Score	Category
VE9ML	93	92	59,524	CLP
VE9HF	92	53	17,808	CHP
VE3KAO	36	25	3,050	A15LP
VE9OA	11	11	682	A15LP
VE2KOT	11	12	612	CLP

NAQP JAN CW

Call	QSO	Mult	Score	Class
VE3JM	1,040	241	250,640	SO
VE5MX	1,095	220	240,900	SO
VE3EJ	889	243	216,027	SO
VA7ST	924	216	199,584	SO
VE3CX	742	228	169,176	SO
VE3KI	716	209	149,644	SO
VY2SS	767	187	143,429	SO
VE3RZ	707	199	140,693	SO
VE4EA	724	166	120,184	SO
VA3EC	537	185	99,345	SO
VE2AWR	493	161	79,373	SO
VE4VT (VE4EAR)	444	177	78,588	SO
*VE6BMX	462	155	71,610	SO
VE4YU	436	164	71,504	SO
VE3MGY	467	147	68,649	SO
VE3GFN	395	128	50,560	SO
VE4GV	448	108	48,384	SO
VE3TW	332	143	47,476	SO
VA3KAI	309	132	40,788	SO
VE3HG	305	123	37,515	SO
VE5GC	299	109	32,591	SO
VE3NE	282	112	31,584	M/2
VE3VSM	271	110	29,810	SO
VE5KS	226	125	28,250	M/2
VE9AA	236	105	24,780	SO
VY2LI	201	114	22,914	SO
VE3FJ	229	95	21,755	SO
VE9ML	146	145	21,170	M/2
VE2QY	196	99	19,404	SO
VE9HF	197	95	18,715	SO
VA1MM	182	82	14,924	SO
VE7IO	141	91	12,831	M/2
VA3FN	159	79	12,561	SO
VE1RSM	147	72	10,584	SO
VE9OA	130	76	9,880	SO
VE2FK	136	72	9,792	SO
VE5SF	174	56	9,744	SO
VE3XAT	127	76	9,652	M/2
VE2EZD	133	72	9,576	SO
VE3JAQ	126	60	7,560	SO
VA2WA	132	53	6,996	SO
VE7JKZ	95	54	5,130	SO
VE3OM	92	45	4,140	SO
VE3EY	94	44	4,136	SO
*VA3RKM	68	50	3,400	SO
VE7BGP	64	45	2,880	SO
*VA3WR	60	39	2,340	SO
VE4XT	53	35	1,855	SO
VE3FU	50	34	1,700	SO
VE9BWK	44	34	1,496	SO
VA5LF	48	30	1,440	SO
VE3RCN	44	28	1,232	SO
VA3PAW	34	26	884	SO
VO1BQ	32	20	640	SO
VE3ZY	28	17	476	SO
VA7MM	1	1	1	SO

*=QRP

REF CONTEST CW

Call	QSO	Mult	Score	Category
VE3IAE	122	96	34,176	SOAB
VE2CQF	57	43	7,181	SOAB
VA3RKM	39	36	4,140	SOAB
VE3FJ	39	33	3,795	SO15
VE2JR	20	20	1,200	SOAB
VE5MX	5	5	75	SOAB

CQ 160-METRE CONTEST SSB

Call	QSO	Mult	Score
VY2ZM	821	50	559,936
VE3PN	533	48	201,853
*VE3MGY	413	52	118,944
VE3CX	358	53	104,820
VA3XH	290	46	81,480
*VE3VZ	239	43	56,399
*VE3NB	189	44	49,131
VA2WA	201	33	36,138
*VE4TV	127	42	27,016
*VE3SWS	85	31	13,838
*VE3HED	96	28	13,224
VE6BBP	70	30	10,478
*VE3RCN	71	26	9,180
*VE2HAY	53	24	6,000
*VE7DNZ	40	19	3,515
VA7IR	47	12	2,712
*VE3TU	24	14	1,596
*VE2PIJ	19	12	1,068
VE9AA	12	10	594
*VA3FN	8	6	222
VE1OP	285	78	95
VE2AWR	214	64	72
*VA3DBT	5	3	66
VE2CQF	154	44	52
VE9AA	135	37	52
VA3GUY	141	33	47
VE3FJ	117	33	39
VE3ZT	79	26	27
VE9HF	60	19	20
VE5MX	43	14	15
VE2QV	42	14	14
VA3RKM	27	8	9
VE1ZA	9	3	3
**VE4EAR	-3	2	1

* = Low Power
** = QRP

CQ 160-METRE CONTEST CW

Call	QSO	Mult	Score	Category
VY2ZM	1,899	133	1,873,438	SOHP
VA2EW	1,338	117	924,885	SOHP
VE3EJ	1,360	113	896,203	SOHP
VA2WA	1,130	122	835,944	SOA
VE3AT	1,044	107	610,756	SOHP
VE3PN	768	96	421,536	SOHP
VE3CX	871	92	396,980	SOA
VE3KI	770	93	374,139	SOA
VE2OJ	837	88	366,872	Multi
VE3RZ	712	98	361,718	SOA
VE6SV	840	79	335,671	SOA
VE3TA	488	94	248,724	SOA
VE3KZ	674	67	216,745	SOHP
VE3XL	632	65	198,380	SOLP
VA3KA	468	80	197,200	SOHP
VA3DX	495	71	173,666	SOA
VE6BBP	476	67	154,636	SOHP
VE3OSZ	375	73	139,795	SOLP
VE3MGY	476	58	133,284	SO QRP
VE3CV	340	67	112,225	SOLP
VE3FU	250	74	104,710	SOA
VA2EU	269	69	97,152	SOLP
VE3YT	367	53	93,757	SOHP
VE3SB	336	56	90,272	SOLP
VA2AM	161	84	89,712	SOA
VA3ATT	373	50	89,050	SOLP
VE9ML	235	69	88,527	SOA
VE3ADQ	304	58	84,738	SOLP
VE3FAS	203	71	75,970	SOHP
VE7JKZ	276	49	67,473	SOHP
VE1RSM	223	58	67,396	SOLP
VE3TW	279	48	63,600	SOLP
VE6TL	245	54	62,424	SOA
VE3VV	244	47	54,473	Multi
VE1ZAC	165	55	47,410	SOHP
VE3KAO	235	42	46,830	SOLP
VE3GTC	194	48	44,112	SO QRP
VE9HF	180	49	42,728	SOHP
VA7DZ	179	49	42,434	SOA
VE3CWU	203	42	40,236	SOLP
VE3RCN	194	40	36,640	SOLP
VE4VT	147	48	33,264	SOLP
VE6KC	148	46	31,648	SOHP
VE7VQ	108	56	30,968	SOA
VE7YU	164	197	29,944	SOLP
VE2SG	143	44	29,788	SOA
VE3MM	146	41	28,782	SOHP
VA7MM	134	43	27,391	SOLP
VA7ST	124	39	23,244	SOLP
VA7ND	114	42	22,260	SOLP
VA3FN	132	34	21,318	SOLP
VY2LI	98	38	20,520	SOHP
VA6SP	118	36	19,728	SOLP
VE4YU	103	38	18,430	SOLP
VE7CA	89	30	12,450	SOA
VE3XAT	75	24	8,424	SOA
VE3GFN	60	22	5,874	SOLP
VE2FK	48	21	4,410	SOLP
VA3DBT	44	20	3,920	SOLP
VO1HP	27	22	3,080	SOA
VE9AA	40	17	2,992	SOHP
VA3WR	36	19	2,907	SO QRP
VA3RKM	37	17	2,890	SO QRP
VE3IGJ	7	6	192	SOLP

NA QSO FEB PARTY RTTY

Call	QSO	Mult	Score
VA2UP	865	183	158,295
VE4EAR	700	161	112,700
VE2FK	535	166	88,810
VA7ST	544	161	87,584
VA2ES	500	155	77,500
VE3CX	528	145	76,560
VA7AM	517	136	70,312
VE5KS	430	150	64,500
VE2EBK	434	145	62,930
VE3VSM	420	133	55,860
VE3NRT	350	140	49,000
VE6QO	425	115	48,875
VE6BMX	388	122	47,336
VE3AJ	314	117	36,738
VE3TW	289	121	34,969
VE3NZ	314	109	34,226
VE2NMB	261	109	28,449
VE6SQ	278	98	27,244
VE2SG	247	97	23,959
VE7IO	237	92	21,804
VE3KI	193	108	20,844
VE3JI	245	75	18,375
VE3RCN	149	80	11,920
VE9AA	143	61	8,723
VE7DXH	118	61	7,198
VE7FCO	114	59	6,726
VA7ZM	127	49	6,223
VA3IK	102	52	5,304
VE7BGP	78	53	4,134
VE3XAT	61	47	2,867
VA3FN	40	31	1,240
VY1XY	24	11	264
VE7QC	15	9	135

VERMONT QSO PARTY

Call	QSO	Mult	Score	Class	Power
VA6NJK	14	7	98	SOA	HIGH
VE2HKW	8	6	96	SOA	LOW
VE9ML	7	6	84	SO	LOW
VA3PCJ	4	4	48	SO	QRP
VE3KJQ	4	4	48	SO	QRP
VE2PIJ	3	4	24	SO	LOW
VE9AA	3	4	16	SOA	HIGH
VA7ODX	2	3	12	SOA	LOW
VE7JH	2	3	12	SO	LOW
VE3DTI	1	1	6	SO	QRP

MEXICO RTTY INTERNATIONAL CONTEST

Call	Score	Power
VA7ST	18,560	HIGH
VE3FH	18,928	LOW
VE6QO	10,400	LOW
VA3IK	7,788	LOW
VE6SQ	4,820	LOW
VE3FJ	4,640	LOW
VA7ZM	2,928	LOW
VE9AA	1,022	LOW
VE7FCO	726	LOW
VE9BWK	568	LOW
VE3AJ	110	LOW
VA7JC	42	LOW

RAC ONLINE STORE: RAC – CAFÉPRESS SITE

For the RAC Store visit: http://www.cafepress.ca/rac_radio

SECTION NEWS THE RAC FIELD ORGANIZATION FORUM

ALBERTA:

SM: Garry Jacobs, VE6CIA
SEC: Neal Sunderland, VE6NL
STM: Jack Humphries, VE6JRH
OOs: Don Momen, VE6JY
Tom Martens, VE6TRM

SEPTEMBER-OCTOBER SM REPORT:

Medicine Hat Amateur Radio Club

I am very pleased to announce a new Medicine Hat and area Emergency Coordinator, Joel Keeler, VE6KEE. Joel has agreed to take on this important role for the group and is looking forward to assisting local services with the Amateur expertise that is so vital in times of commercial communications disruption.

Thank you Joel for heading this up and for providing the following report.

EC Joel, VE6EE, reports:

We have discussed ARES in our local radio club and there are some persons who are very interested. I am in the process of getting an Emergency Communications Manual in order for our area.

After that is complete – with input from other Amateurs and officials in the area – I will send out a copy to see what you think. Other than that, I will be setting up a meeting shortly, strictly ARES info. I am sure there will be some who would like to help by serving as Team Leader, Assistant EC and so on. Until then I will be working away at getting things set up and running.

Cold Lake Amateur Radio Society
Garry, VE6FGN

The Cold Lake Amateur Radio Society (CLARS) supported the Walk for Cancer in the park in September. They also participated in the Radio Amateurs Canada (RAC) Simulated Emergency Test (SET) on October 4.

The Exercise objectives included: call out of members, deploy to an area, establish High Frequency (HF) communications in an austere setting, conduct Direction Finding (DF) drills, and report our activity to the Alberta ARES Command team. Our final objective of the day was to have a sit down meal for a debrief and fellowship.

The Exercise started with a warning Order which was distributed by email, phone and 2m repeater on Friday, October 3.

The scenario was a telephone outage planned for our local area at 9 am local on Saturday, October 4. All CLARS personnel were advised to monitor the local repeater beginning at 8:30 am.

The net was activated at 8:30 am, with personnel designated to establish an HF link to Edmonton. In addition, other personnel were distributed throughout the town for support to the Police, Fire, Ambulance, Hospital and City Hall.

We made contact with Edmonton ARES via 80m and Winlink to ensure our supported agency could communicate if required. Once the response was in place, we relieved all members from their tasks in order to support a Ground Search and Rescue (GSAR) request for assistance. The scenario included a lost pilot with a radio. Our job was to locate the radio signal.

We deployed all members to an austere location. Once in place, we established a net control with both 2m and HF communications. Communications were established with Edmonton via 80m. Members deployed via ATV, with directional “foxhunting” antenna.

We found the pilot in good time and returned to our net control.

The Exercise was finished off with a sit down meal for all members.

The 2014 SET was a very positive experience. We got great support from the Edmonton crew, developed some new skills, practised some old skills, and had a great time working together. We had a wonderful time overall and are looking forward to next year already!

SASK/ALTA Group
Joe, VE5JM

We were planning to hold our Field Day exercise at the Vermilion Campus of Lakeland College this year. It was to be staged on the football field, using power generators and tents and trailers for radio operations centres.

Unfortunately, the weather did not cooperate (it rained long and hard) so we could not get onto the football field. We moved operations to the VE5RI contest station at the VE5WI location. There we used main power and all types of antennas.

We made over 400 contacts and everyone present had a good time. We hope to be out on the field again next year.

The new RCMP building is now complete and everyone has moved in and is settling down. We have had two meetings now in the new Emergency Operations Centre (EOC) and we are setting up the radio ops room just down the hall. I am preparing a list of frequencies that we will be using to submit for checkout and possible conflict with the other users in the building. We are also looking at types of antennas that will work on the building.

Don, VA6VAC, held a Simulated Emergency Test (SET) exercise at the Vermilion Armory on October 4. There is a complete station in the Armory which has HF, UHF and more. He did make some contacts during the SET exercise and filed a report after the event.

Our repeater expansion is continuing with repairs and maintenance being the operative words at present. We probably will not be doing too much more on expansion until next spring.

Foothills Amateur Radio Society

The Foothills Amateur Radio Society (FARS) participated in the SET and had fun doing it! FARS members set up remote stations outside of High River, in Calgary and even in British Columbia and attempted communications with other similar stations participating in the SET.

Wally, VE6BGL, sent out the following notice to FARS members for the SET:

“This Saturday will be the nationwide Simulated Emergency Test (SET) sponsored and administrated by Radio Amateurs Canada.

This is a great opportunity to test your personal readiness to assist in an emergency, make sure that hardware is working properly and hone your skills.

To this end, I encourage every ham in FARS, to take even an hour and drive, walk or bike to a site away from your base station, house and comfort zone, setup an Amateur station and try to communicate with a) the ARES group in Edmonton operating the Provincial EOC; b) other stations involved in the SET.

The Provincial plan and the RAC info link are below. To make it interesting there will be Prizes.

1) Log all your contacts – the event runs from 8 am to noon Saturday – from your “away” station.

2) Submit your log sheet electronically to gardinercomputer@shaw.ca before October 11, 2014

3) the top Three (verifiable, on your honour as a ham, scholar and gentleman (or woman) correct), logs received from a FARS member, with the most contacts will win special collectable mystery prizes, to be awarded at the FARS Annual General Meeting in November.”

Prizes were won by Adrian, VE6TDX, Vince, VE6LK and Wally, VE6BGL. Modes used were APRS messaging, Winlink, FM on the SARA system and 80 metre SSB.

Thanks for the reports from those areas I heard from.

– 73, Garry, VE6CIA

MANITOBA:

SM: Jan Schippers, VE4JS
STM: Jan Schippers, VE4JS
SEC: Vacant
DECs: Jeff Dovyak, VE4MBQ (Capital Region and CanWarn);
Gord Snarr, VE4GLS (South-East Central Region / South-West Region); Wayne Warren, VE4WR (North Region and Special Projects);
Vacant (North-Eastern Region);
Vacant (North-West Region);
EC Ron Wlliscroft, VE4QE (Selkirk and District); Bill Boskwick, VE4BOZ for RM of Grey, RM of Dufferin & Town of Carman

SEPTEMBER-OCTOBER SM REPORT:

It’s winter, at least in Manitoba, and the clubs are back in action. We all get to enjoy our hobby on these dark cold nights. Winnipeg Amateur Radio Club’s Chief Instructor, Vera Koladubsky, VA4VMM, reports that Basic Short Course 8 at Shaftesbury High School graduated 22 new Amateur Radio operators.

Of the 22 that wrote the exam, 18 passed with Honours and the remaining four with Basic. Congratulations to the new hams and to Vera for leading the way. Unfortunately, Vera is stepping down as Chief Instructor due to full-time workload.

The WARC Fall Fleamarket was held at Heritage Victoria Community Centre. Everything went very well. All tables were in position and numbered by 9:30.

The vendors were allowed to begin setting up, beginning at 9:30. Buying began at 10:30, right on time.

Winnipeg ARES
Jeff Dovyak, VE4MBQ

We had ARES members on call 12 hours/day for 16 weeks from a week before Victoria Day until Labour Day to operate VE4WWO in the Prairie & Arctic Storm Prediction Centre (PASPC). Typically, the same ARES member is on call in one-week blocks, either daytime or evening although in a couple of cases they arranged for a relief late in the week.

Most volunteer Net Controllers volunteered for more than a one-week block. This past summer saw only four (4) Severe Weather nets controlled by VE4WWO, ranging from one-hour duration to four hours duration.

There were 11 Station Visits (familiarization, equipment adjustment/service, etc) including six-hour coverage on Fathers' Day during the Manitoba Marathon. Thanks to the 17 CANWARN Net Controllers for 2014: VA4AJG; VE4s: HK, JS, VD, AJO, ALW, CDM, DLA, DXR, DWG, GKS, HAZ, JAH, JNF LDI, STL and MBQ.

Seventeen Winnipeg ARES members and affiliates provided volunteer Amateur Radio communications for the Parkinson's SuperWalk on Saturday, September 6. Event organizer Howard Koks said: "It's great having your team at the event and as our set of eyes on the course. We certainly hope you will join us again next year!"

Thanks to Dick Maguire, VE4HK, for coordinating the ARES component again. The ARES volunteers were: VA4s: AJG, RWT and VMM; VE4s: DAR, MMG, CDM, TTH, CHT, PH, PEH, KAZ, DJS, SE, GKS, GMB and HK; and Jeffrey Kazuk.

Our September General Meeting featured Don Gerrard, VE4DWG, presenting on *Flight Aware*, an aircraft position reporting/tracking system and ADS-B tracking.

WFPS Chaplain Mark Young spoke about *Critical Incident Stress Management* at our October General Meeting. This was a thought provoking session that showed that we have some work to do to try to get a Peer Support network in place before it is necessary.

Winnipeg ARES had another successful Silent Auction at the WARC Fleamarket. Thanks to Craig Martin, VE4CDM and Tom Mills, VE4SE, for getting things organized and thanks to Craig Martin, VE4CDM, Susan Collings, VE4SYM, Glenn Napady, VE4GWN and Dianna Allan (XYL VE4RA) for working at the table. A big thank you to our supporters who donated items or cash for prize purchases and those who purchased draw tickets.

Thanks to our generous donors: Dick Maguire, VE4HK; Mariska Maguire, VE4MMG; Craig Martin, VE4CDM; Tom Mills, VE4SE; Ruth Mills, VE4XYL; Susan Collings, VE4SYM; David Rosner, VE4DAR; Jim Townsend, VE4CY; Bob Poole, VE4MAQ; Tom Blatch, VE4HQ; Micro-High Tech; Randy Hull – Manitoba Disaster Management Conference; Manitoba Marathon; and RCAF 17 Wing / RCAF Run.

All six prize lots were picked up at the Fleamarket. Congratulations to winners: Colin Carson, VE4CSN; Gary Benish, VE4GJB; Michele Fagg; Carol Jones; Ryan Evans, VA4MAC; and Don Suarez, VA4DON.

Three Winnipeg ARES members supported the South-Central ARES Simulated Emergency Test on Saturday, October 25.

Thanks to Garry Frankel, VE4VD, Jim Sutton, VE4SIG and Allen Garinger, VA4AJG. Garry and Allan operated VE4WWO and Jim assisted Wayne Warren, VE4WR, at VE4PSC. About nine Winnipeg ARES members assisted me on Saturday, October 25 with some informal testing on one of our repeaters.

Thanks to VA4MAC and VE4s: ESX, GWB, DLA, GWN, CHT, YYL, TTH and MBQ. Now I have something specific for our technicians to tackle.

Traffic Totals
September: 8
October: 2

– Jan Schippers, VE4JS

ONTARIO NORTH:

SM: Al Boyd, VE3AJB
Email: ve3ajb@vianet.ca
STM: Pat Dopson, VE3HZQ
Email: dopsonp@vianet.ca
SEC: Dave Hayes, VE3JX
Email: ve3jx@bell.net
OBM: Paul Caccamo VA3PC
Email: va3pc@ciinet.org
Website: http://ontario.racares.ca

SEPTEMBER-OCTOBER SM REPORT:

SEC Dave Hayes, VE3JX reports: Jim McLean, VE3LJM, EC for Manitoulin Island & North Shore sent out a blurb to his group and others about the advisability of all ARES members having some level of IMS training so that we can work directly with other Emergency Responders. He provides a link to an Ontario Government website that features free online training and certification for IMS. Jim's message also gave a basic description of the IMS system and why his members should consider taking this optional training. My only comment to this is that Jim's message was excellent, but what might be considered "optional" today could very well become "mandatory" tomorrow. Well done, Jim!

On another note: Kudos to the Elliot Lake group for being able to have their Mayor and their Red Cross representative attend their SET. This is a public relations coup for ARES and its value.

Albany DEC reports that there was good participation in the District for the annual SET. Elliot Lake, Sault Ste. Marie and Echo Bay all had their individual local exercises and were able to communicate with each other and with the Provincial EOC in Toronto; either directly or through relay stations. Several messages were sent and received.

Brent MacMillan, VE3OTL, EC for Sault Ste Marie & Area, reported a successful SET. The volunteers manned two EOC stations – the primary and the backup locations – and had mobile units that tested the facilities at other locations in town, such as the Fire Halls. Several messages were sent and received by the primary EOC using VE3SOO. Those taking part were: EC Brent, VE3OTL, Dave, VE3JX, Rolly, VE3RJ, Bob, VA3BZ, Dave, VE3DPT and Shawn, VA3SWN.

Dave Campbell, VE3EGC, EC for Echo Bay & Laird reports: "As part of my EC duties I attended the Annual Training and Exercise for Emergency Management held in Bruce Mines on September 30 from 1 to 4 pm."

There was also a valuable contribution made by Tony, VE3DWI, as a relay station for contact with the PEOC.

Dave Sutherland, VE3SUT, EC for Elliot Lake reports: "We had nine members taking part in the exercise (SET), plus a member from the Red Cross, and our Mayor and his wife. We sent 7 messages and received 4." Dave was pleased with the results and with the Mayor's visit.

Dave also reported on their annual Halloween Patrol, where Amateur Radio mobile stations help to keep the kids safe. Seven members took part: Harold, VE3HK, Al, VE3AGP, Richard, VE3UYC, Dave, VE3LNZ, Davis, VE3SUT, as mobiles; and Grace, VE3HZB, on control base at home. In case of incident she would call the police. This year nothing went wrong.

Paul Caccamo, VA3PC, DEC for Magnetawan, forwarded two reports of activity by the North Bay ARES group.

The first report, authored by **Chris May, VE3CMX**, detailed the Run Off-The-Grid cross-country trail race, which took place in the Mattawa area. Six Amateurs were involved in providing comms for the event. Two repeaters, six mobiles, and five portables were used. The total distance travelled was 1300 kilometres. Operators participating were: VA3BDR, VE3MAF, VE3MAA, VA3PC, VA3SPT and VA3CMX.

The second report came from **North Bay EC Bill Silver, VE3SPT**, detailing ARES participation in the North Bay Regional Health Centre Walk / Run. There were six volunteers including five Amateurs: VA3PC, VE3YO, VA3SPT, VA3CMX and VE3ATK. There were 100 messages passed.

Stiig Larson, VE3LBX, DEC for Killarney, reported good activity in his District. Below are some of the reports from his ECs.

Alan Viitala VE3AJV, EC for Sudbury, reported: "Training continues with NBEMS and is going well. Some dedicated members of Sudbury ARES once again participated in the annual SET held October 4, 2014. I would like to thank the following for their time and efforts: AEC Wayne, VE3THN, AEC Marc, VE3SNA, Réal, VE3ZDK, Thelma, VE3WIP, and our newest member Ken, VE3KGV. Welcome aboard Ken!

A field kit was deployed to a shelter location and several modes were tested from analog, D-Star and NBEMS. Digital traffic was successfully passed between kits and our EOC station, and operators checked in to the OPN to test the HF rig. All equipment performed very well and we were able to learn from results in order to enhance equipment in the future. Many thanks to all who took part!

We are continuing training with NBEMS and have some equipment upgrades ordered which will further our capabilities with digital traffic. Upgrades being bought by Greater Sudbury Emergency Management.

In November we will also be giving a presentation and demo to a new group of volunteers with EM, at the request of our CEMC. It will be a great opportunity to show what we can do and introduce to them who we are.

Sudbury ARES was asked to help the Greater Sudbury Police with deployment of their new $14 million radio system. Wayne and Real attended and handed out new portables to the officers at their lineup.

Wayne and Marc were in attendance of the Greater Sudbury Emergency management advisory panel meeting (GSEMAP), which is held quarterly.

Marc has also been very busy preparing a presentation and meeting with staff at the Greater Sudbury Police, to bring awareness of ARES and how ARES can help." Thanks Marc for your continued support and help with this!

Jim McLean VE3LJM, EC for Manitoulin Island & North Shore reports: "ARES members of the MARC Inc were asked to participate in monitoring this year's annual Terry Fox Run held on Sunday, September 14, 2014 in Little Current on Manitoulin Island. In keeping with the theme of the event, tactical call signs were assigned to each volunteer beginning with the prefix "Fox", (Fox 1; Fox 2, etc.).

The ARES volunteers dedicating their time were as follows: Rusty Auxier, VE3WVA, Al Boyd, VE3AJB, Jim Hastings, VA3AUC, Mary Hastings, 'Scribe', Jerry Kitts, VA3GWK, Marshall Maciuk, VA3NOD, Mike Maciuk, VE3UKI, Jim McLean, VE3LJM, Lorraine McLean, VE3LMJ 'NCS', and Dave Montgomery, VA3DYM."

ARES members of the MARC Inc. were asked to participate in a SET Tabletop exercise held in Little Current at the Recreational Centre on Tuesday, October 7.

Members Al Boyd, VE3AJB, Jim McLean, VE3LJM and Lorraine McLean, VE3LMJ, attended along with Municipal reps and Emergency Medical Technicians personnel as well as the Ontario Provincial Police and the Fire Department. Several Municipalities also participated in this year's annual SET: Little Current, Gore Bay, Gordon - Barrie Island and Assiginack."

AEC Les Arnott VE3UCW in Chapleau reports: "The public school building (which held the town EOC) has been torn down and the students moved to the high school. The EOC centre is temporarily back at the town hall. No ham gear set up there yet. Negotiations are awaiting the election of a new mayor and picking a new permanent location."

Fred Lesnick, VE3FAL, DEC for Amethyst District details some of the public service events that ARES has supported in his District: September 7 Xterra sleeping giant, 6 operators; September 14 Caribou charity ride, 7 operators; September 21: Tbay Marathon, 8 operators.

The usual nets on 2 metres continue as well as the daily 3.750 Northwest ARES Net at 2015 EST.

– Allan Boyd, VE3AJB

DECs reporting:
VA3s: PC
VE3s: FAL, JX and LBX
ECs reporting:
VA3s: AJV, SPT
VE3s: EGC, LJM, OTL, MXJ, SUT

ONTARIO EAST:

SM: Michael Hickey, VE3IPC
Email: ve3ipc@gmail.com
SEC: Vacant
STM: Vacant
OBM: Brad Rodriguez, VE3RJH
Email: ve3rhj@rac.ca
Website: http://ontario.racares.ca

SEPTEMBER-OCTOBER SM REPORT:

In 2014 we had a lot of important activity in this Section and we look forward to what 2015 will bring us. The heavy snow dump in Buffalo, New York serves as a reminder of how important it is to have our 72-hour bug out bag with food, clothes, meds and your bug out list of what you need to include. It is important to have a backup VHF/UHF Comm system at the ready to deploy with your bug out bag if you have to leave home. This same backup radio system can be used as your back up radio station at home to provide EmComm and possible relays to or from the affected areas in a disaster.

Please note that the weekly Bulletin we have been used to hearing on our local nets may come to an end if I don't get a replacement very soon.

I am in urgent need of a Bulletin Manager for Ontario East Section as Brad, VE3RHJ, will be stepping down after many years of producing the quality weekly Bulletins to Ontario clubs and ARES/EmComm groups regarding important and very useful information for all Amateurs that are read on the air at regular weekly local nets.

I need someone to take this position for this Section as soon as possible. If you are in the habit of looking up interesting news items regarding the Amateur Radio hobby and are interested in taking this important position please contact me.

I am also in need of a Section Coordinator to do some admin work to liaise and coordinate with ARES and or EmComm group coordinators within this RAC Section. Please refer to the ads asking for your help in both previous TCA issues and on page 41 of this TCA. I invite your inquiries and welcome any help I can get from a dedicated and experienced EmComm leadership member who is willing to take this very important leadership position.

Please contact me directly regarding either of the two available positions.

Eastern Ontario ARES District

The Eastern Ontario ARES District has had a very slow beginning in October fall's activity season. The DEC, Lance, VA3LP, was in attendance at the Ottawa Amateur Radio Club's annual Hamfest held at the Carp Fairgrounds. The District had a display board set up with information for Amateurs entering the arena and the DEC greeted all who entered hoping to find some new ARES prospects. He met many old friends from throughout the district and a few that seemed to be interested in ARES.

Although not all the groups were able to participate in the October SET this year, a few were able to arrange exercises and had their members check in and report their readiness to be deployed to operations with the Red Cross. As well as the usual net activities the groups are actively promoting ARES to the general public as well as Amateur Radio Operators.

Ottawa ARES/EMRG Group

Submitted by Assistant Group Coordinator Mike Kelly, VE3FFK

The Ottawa ARES/EMRG Group had, as expected, a slow September in EMRG land, although the hamfest was a good time for eyeball QSOs.

Once again Dave, VE3KMV, ran the repeater tests on September 3, with Ron, VA3ACZ, Tim, VA3PYC, Mike, VE3FFK and Paul, VE3CPH, participating. Testing on UHF is getting a bit thin, only one checkin station there. More stations would be helpful. Testing is usually on the first Wednesday of the month, starting at 20:00 on 146.880-(136.5) and proceeding through the five other EMRG repeaters. Throughout the month, the two packet BBSs, and Winlink nodes are also checked along with one wide area club repeater which is included in our communications plan.

The Ottawa ARES/EMRG Group held the usual monthly repeater tests conducted on October 1st by the usual people with the usual results. Then, on October 20, an exercise parallel to the SET was conducted. Group Coordinator (GC) Richard, VE3UNW and Gord, VE3XGP, went to Ottawa Red Cross HQ and acted as liaison and net control operator respectively for a test.

Members were asked to check in on our primary repeater with a "score" related to their level of preparedness, then make several contacts with other members on simplex, then report back to the net. I haven't seen the logs yet, but there were about 10 checkins, of which about half were members

HELP WANTED

Section Leadership Management Positions Available

Section Emergency Coordinator (SEC): The Ontario East Section Manager (SM) is looking for someone with previous experience as a District Emergency Coordinator (DEC). The ideal candidate will be someone who has been a DEC and was also a Group Coordinator (GC) or Emergency Coordinator (EC) before that with several years of experience. Consideration will also be given to an experienced and dedicated ARES GC or EC who understands the bigger picture of ARES and lives within this Section.

This position requires someone with leadership skills and who is self-motivated, personable and is at ease with contacting the DECs and ECs by phone and/or by email from time to time as required. This position requires some administration and organizational abilities and the need to be able to provide ARES Section coordination as needed. As the new ARES SEC you will benefit from the SM's support and guidance having years of ARES management experience. Some of the groundwork has been done, but more work is needed. Interested applicants regarding this responsible ARES leadership position should contact the Section Manager directly at 613-679-4474 or ve3ipc@gmail.com.

– Michael Hickey, VE3IPC, Ontario East Section Manager

and the others were drawn in by the unexpected burst of activity on both the repeater and on simplex.

Prescott-Russell-ARES Group

Submitted by Group Coordinator Lance Peterson, VA3LP

The Prescott-Russell (PR)-ARES Group had a few members who attended the annual September Carp Hamfest: Norm, VA3NPL and Harry, VA3ZAK. A great time was had by all. It was a great chance to meet old friends and gather some new ones. Some even brought home some old as well as brand new equipment. The Group is still working on MESH and hopes to have something useful for ARES in the coming months.

The Prescott-Russell ARES Group has been busy in October trying to get both repeaters back on the air. We are awaiting a few more parts and we can install the VA3PRA repeater back into its home in the Alfred water tower. After a lightning strike at the Hammond water tower, the VE3PRV repeater has had reduced sensitivity. It appears that a polyphasor has been blown as well as the receiver itself has reduced sensitivity. We hope to have them both back up by the end of November. The group has continued to meet each Thursday at the Chamberlain Centre in Rockland and occasionally in the Hawkesbury area.

On October 19, the group set up a tent outside of the “50+ Attitude” event in Vankleek Hill. We had HF and VHF/UHF capability and information for any attendees at the event. About 30 to 40 people stopped by to ask questions about Amateur Radio and ARES. A couple were interested in learning more about Amateur Radio and some were interested in the volunteer in support of the community side of ARES. All in all it was a very good short notice exercise that the group learned a lot about quickly gathering local resources and setting up a field EmComm station. We would like to thank Tulmar Safety Systems Inc. in Hawkesbury for the loan of their blow-up tent which provided excellent shelter from the cold wind that day.

As in years past, the group was again involved with Goblin Patrol in many areas within the county of Prescott-Russell. The following provided support to the community by driving around and showing an adult presence where young ones were trick or treating.

Net Control: Harry, VA3ZAK; Rockland: Chris, VA3NKE, Jim VA3KV, Mario, VE3WPZ and Norm, VA3NPL; Bourget: Alan, VA3ONN and Suzanne; Clarence Creek: Lance, VA3LP; Alfred: George, VA3SUS and Mike, VE3IPC; Vankleek Hill area: Ron, VA3RRZ. In addition, Yvon, VA3YGO, provided relay traffic between the east and west patrol groups from Bourget and Jim, VD3XJ, in Rockland was standing by at home in Rockland to provide landline service and standby Net Control. Thanks to all for your support.

The Renfrew County West-ARES Group

Submitted by Group Coordinator Bob Howard, VE3YX

The Renfrew County West (RCW) -ARES Group performed five nets in October.

On October 4, the Pembroke Red Cross held a celebration of 75 years in Pembroke.

RCW-West had three packet / voice stations set up on site for the event which was expected to draw a number of visitors. One site was the permanent station located in the volunteer’s office which was manned by Rob, VA3AGN. As that station would not be accessible to visitors, another station was set up in the front yard of the Red Cross building in a makeshift shelter using a generator for power and a pop-up mast for the antenna.

Visitors would be able to watch the “radio action” and peruse TCAs and other Amateur Radio publications. The third station was in the new Disaster Response Unit (DRU) which is a trailer that is set up as a portable EOC for Red Cross use.

The weather turned ugly and kept visitors away in droves. The front lawn station with Yvonne, VE3RYA, operating saw only one or two visitors before the wind and rain threatened to damage equipment and materials forcing the dismantling of the station. Several packet messages were sent and received by the station before it was shut down.

A few visitors had a quick pass through the DRU and were able to see the ARES station in use by Dom, VE3DGZ.

Debra, VE3IEH (GC of the RCE ARES group), Rick, VA3RWH and Bob, VE3YX (GC of RCW ARES) provided support for the three stations. John, VA3IOI, alternated hats from Red Cross to ARES throughout the event.

The station set up in the DRU provided some insight into antenna mounting, feedline routing and operator position for future modifications to the unit as it continues to be prepared for its role.

The front lawn station demonstrated that our ARES group doesn’t own or have ready access to a shelter that can be set up quickly and will work in that sort of inclement weather. The generator and antenna system were fine, but the rest wasn’t.

On Wednesday, October 22, Yvonne, VE3RYA, Dom, VE3DGZ and Bob, VE3YX, attended the EMO Capital Sector meeting held in Kanata. The shootings in Ottawa put a damper on the meeting.

The morning presentations on the Kashechewan evacuations and progress with public alerting in Ontario went normally, but the afternoon sessions were abbreviated.

The Renfrew County East-ARES Group

Submitted by Group Coordinator Debra Bee, VE3IEH

The Renfrew County East (RCE)-ARES Group had a reasonably active month. On October 4, Group Coordinator (GC) Debra, VE3IEH, attended at the exercise and open house for the 75th anniversary of the Red Cross in Renfrew County at the office in Pembroke.

Although it was a cool and rainy day quite of few members of the public attended and enjoyed tours of the facility and the Disaster Response Unit (DRU), as well as a BBQ and an opportunity to take home one of the door prizes.

UPCOMING SPECIAL EVENTS

XM3G: 200TH ANNIVERSARY OF THE TREATY OF GHENT

Sponsor: Robert Emerson, VE3RHE

The Treaty of Ghent was signed in Ghent, Belgium and ended the War of 1812.

Date: Saturday, December 6 to Monday, January 5.

Place: Mississauga, Ontario.

Description: Expected frequencies are 28.490, 21.290, 14.290. Hopefully, I will be operating on 12m, 17m and 40m as well. Visit canada-150th.ca for updates.

Info: Please email Robert at ve3rhe@gmail.com. QSL Cards will be available via VE3RHE after the event. (Bureau or Direct)

Web: http://www.canada-150th.ca

SPECIAL EVENTS VG3SJAM AND VC7SJAM

Celebrating the 200th Birthday of Sir John A Macdonald

Date: Thursday, January 1 until Saturday, January 31.

VG3SJAM: The Kingston Amateur Radio Club will be operating the special event VG3SJAM during the month of January from Sir John A Macdonald’s home city of Kingston, Ontario which was the first capital city of Canada. QSL cards and/or certificates will be available.

Info: Contact vg3sjam@ve3kbr.com or visit http://ve3kbr.com/

VC7SJAM: The Delta Amateur Radio Society will be operating VC7SJAM during the month of January. Sir John A Macdonald’s birthday was on January 11 and that will be the most active day with most modes active during parts of the day. QSL cards will be available through the Bureau only.

Info: Contact gi@deltaamateurradio.com

Web: http://www.deltaamateurradio.com.

CG350F SPECIAL EVENT STATION

50th Anniversary of the Canadian Maple Leaf Flag

Sponsor: Robert Emerson, VE3RHE

Date: Sunday, February 1 to Monday, March 2.

Description: Special Event Station CG350F celebrating the 50th Anniversary of the Canadian Maple Leaf Flag. Expected frequencies are 28.490, 21.290, 14.290. Hopefully I will be operating on 12m, 17m and 40m as well. Visit canada-150th.ca for updates. QSL Cards will be available via VE3RHE after the event. (Bureau or Direct).

Info: Contact Robert at ve3rhe@gmail.com or

Web: http://canada-150th.ca

ARES members participating were; Bob, VE3YX and GC for ARES-RCW, Yvonne VE3RYA, Dom, VE3DGZ and Rick, VA3RWH.

The DRU is a re-fit of a logistics trailer owned by the Red Cross. It is now used as a mobile command post and contains several work stations and everything needed by volunteers deployed during an emergency.

ARES members set up and operated packet station VE3STP-7 inside the DRU for demonstration purposes and spoke with members of the public about Amateur Radio. Member of Parliament Cheryl Gallant and Member of Provincial Parliament John Yakabusky attended in the tour of the DRU and ARES members were able to speak with both of them about the importance of Amateur Radio in emergency situations.

GC Debra, VE3IEH and Graham, VE3AMN, attended the fall Capital Sector meeting of the Office of the Fire Marshall and Emergency Measures at the Kanata Recreation Complex on October 22. Facilitated by its chairperson, EMO Field Officer Philippe Geoffrion, it was a day filled with information relating to emergency procedures and situations.

Sadly, it was also the day of the tragic events in downtown Ottawa. The group was kept informed of the situation as it unfolded. First responders from quite a few valley townships were in attendance as well as Bob, VE3YX and GC for ARES-RCW, Yvonne, VE3RYA and Dom, VE3DGZ.

As winter approaches let us all make sure that we have an up-to-date 72-hour kit in every household. One thing we know in the valley is that there will be power interruptions at the minimum. The forecast is for a very snowy season.

Stormont, Dundas and Glengarry (SD&G)-ARES Group
Submitted by Group Coordinator Earle DePass, VE3IMP

The Stormont, Dundas and Glengarry (SD&G)-ARES Group continue to be read the ARES bulletins each Monday, at 7 pm local, on the club's 2m net conducted on VE3SVC (147.180MHz.+).

Amateurs are also asked to then check in on the VE3MTA (UHF) repeater. Occasionally we also call for checkins on a new ARES repeater located in Cornwall (VE3VSW) and VE3SVR in Morrisburg. This process confirms the serviceability of nearby Seaway Valley Amateur Radio Club (SVARC) repeater systems at least once a week, should they be required by SD&G ARES.

We are making updates to reflect the change to SD&G ARES from Cornwall ARES on pamphlets developed by Cornwall ARES some time ago. This pamphlet is handy for presentation at fleamarkets and shows.

We are reviewing and making updates to the Eastern Ontario ARES District Mutual Aid (DMAP) Contact Information list.

Doug Pearson, VE3HTR, attended the Emergency Management Committee Meeting for the city of Cornwall held on Friday, September 26.

Districts reporting:
ECs (GCs) reporting: VE3FFK, VE3YX, VA3LP, VE3IMP and VE3IEH.

DECs reporting: VA3LP.

OBS reporting: VE3YX, VE3KII, VE3VY, VE3ZJS and VE3IQZ.

– 73, Michael Hickey, VE3IPC

NEWFOUNDLAND AND LABRADOR:

SM: Vacant

SEPTEMBER-OCTOBER SM REPORT:

A wonderful time was had by all at the first hamfest in 20 years for the Newfoundland-Labrador Section! Saturday, September 6 was a busy fun-filled day at the Masonic Temple in Gander; thanks to the Gander-based ARCON club for hosting the event (see page 50).

President Ken Tucker, VO1KVT, and his crew went out of their way to look after everyone's needs in securing a great location, scrounging so many prizes that we were well over an hour giving them all away, arranging all the snack food and the other food for a first-class prime rib steak BBQ dinner.

During the afternoon, while the XYLs went shopping, hams took advantage of presentations on RAC, contesting, Logbook of the World, the history of Amateur Radio in NL, six metres, the effort to get the new 600 kHz band and other interesting topics.

After a banquet-style meal, a band consisting of Frank, VO1HP, Dave, VO1VCE, Cal, VO1NY, Vince, VO1SO, Ira, VO1IRA, Doug, VO1DSK, and my better-half, Cathy, entertained with selections that included a number of Amateur-themed songs.

Derek, VO1YE, finished up the night providing the DJ music for dancing.

RAC FIELD ORGANIZATION REPORTS

National Traffic System (NTS) Net Reports

Net (Manager)	Sessions	QNI	QTC
September 2014:			
Laurentian	30	489	0
MEPN (VE4LB)	28	584	5
MMWXN (VA4GD)	30	548	2
MRS (VE4HK)	8	230	0
MSMN (VE4AEW)	22	596	0
October 2014:			
MEPN (VE4LB)	30	622	0
MMWXN (VA4GD)	31	526	1
MRS (VE4HK)	9	263	0
MSMN (VE4AEW)	23	590	0

Sunday morning concluded the meeting with a buffet breakfast before handshakes and everyone going their separate ways. Chairman Ira and his committee did such a job that it was the opinion of all that we have another in three years.

The only improvement suggestion I did receive was that snacks that are diabetic-friendly be provided next time for those who have to follow restricted diets. Again, thank you to the presenters and all others who lent a hand.

On Sunday, September 28, a group of 10 or more metro-based Amateurs assisted the MS committee in a support role during its annual bike challenge fundraiser to raise funds for research.

Under Doug Mercer's, VO1DM, leadership, checkpoints and ride-along support was given for this 66 kilometre race/ride from Paradise to Torbay and return.

This event was quite successful despite some rain and cooler weather, with Paul Burggraaf, VO1PRB, getting new phonetics for his call sign, "Paul Repairs Bikes", appropriate as he was riding in the bike repair support vehicle!
Thanks to all who volunteered.

It is with sadness that I inform you of the passing of a good friend and Amateur Radio buddy, Keith Perry, VO1FZ; not only a friend to me but all in the NL Section.

Some time back, Keith was diagnosed with leukemia and underwent chemotherapy to get himself into remission. After reaching that stage, not wanting to go on living with the disease, he decided to go for the full cure by having a bone marrow transplant at a Halifax hospital.

All of the requirements were seemingly coming together for him with respect to bone marrow donor and other requirements. However, the chemo and radiation that preceded the transplant weakened his vital organs to the point that he could not recover.

What a loss, especially for his family, wife Joan and his two sons. If there ever was a caring, pleasant and great fellow to be around, it was Keith. Sorely missed, especially at Saturday morning coffee where he gave as good as he got in the friendly banter.

My thanks go to Ira Stacey, Ken Tucker and others for their contribution to this report.

Remember, Amateur Radio is a hobby; have fun with it and if you have never or infrequently check in to a net, do so and support the fellowship of the hobby and support those who take the time and make the commitment to be net controllers.

Charlie Marsh, VO1VZ
NL Section Bulletin Editor

Cod Jigger	
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For the RAC Store visit: http://www.cafepress.ca/rac_radio

COMING EVENTS

THE HAMFEST AND FLEAMARKET CALENDAR

The following events are listed by date. Some dates and details are tentative. For more Hamfests and Fleamarkets please go to http://rac.eton.ca/events/upcoming.php

BIG EVENT 37 FLEAMARKET/HAMFEST

Sponsor: Niagara Peninsula ARC
Date: Saturday, February 7.
Time: Vendors 7 am; Public 9 am. Out-of-the-Cold Reception area open at 8:15 am.
Place: St. Catharines, Ontario; at the Merriton Community Centre, 7 Park Avenue.
Description: Durham Radio, Radioworld and Maple Leaf Communications; Canwarn, ARES, QSL Bureau and RAC; Door Prizes. Hot Food. Sandwiches. Pop. Free Coffee.
Cost: Public $7; Tables: $13, table only. All tables are 6-feet long. Power only available at tables around the perimeter of the room.
Talkin: VE3NRS 147.240 MHz + Offset Tone 107.2 Hz.
Info: Contact Event Convenor Larry, VA3TLN, at bigevent@nparc.on.ca for more information. Contact Table Coordinator Ian, VE3ERL, at vendors@nparc.on.ca to book tables. Payment options available by paypal or email transfer.
Web: http://www.nparc.on.ca/bigevent.php

BURNABY ARC ANNUAL SWAP MEET

Sponsor: Burnaby Amateur Radio Club
Date: Sunday, February 22
Time: Dealers 8:30 am; Sellers 9 am; Buyers 10 am to 1 pm.
Place: New Westminster, British Columbia; Queensborough Community Centre, 920 Ewan Avenue.
Cost: Public $6; Children under 12 years free. Tables $25 each. This includes one seller. An additional seller is $6. All table rentals must be prepaid.
Info: For table rentals contact Lou Beaubien, VE7CGE, at loucge@telus.net or 604-291-1569.
Web: http://ve7bar.org/swap-meet/

HAM-EX 2015

Sponsors: Peel Amateur Radio Club and the Mississauga Amateur Radio Club
Date: Saturday, March 28.
Time: Vendors 7 am; Exhibits/ Demonstrations 8 am; Fleamarket: 9 am to 1 pm.
Place: Caledon, Ontario; at the Brampton Fall Fairgrounds 12942 Heart Lake Road.
Cost: Public $7.
Talkin: VE3PRC 146.880 (no tone) and VE3MIS 145.430 (103.5 Hz tone required)
Info: Contact parc.pubrel@gmail.com
Web: http://www.ham-ex.ca

18TH ANNUAL IROQUOIS FLEAMARKET

Date: Saturday, April 4.
Time: Vendors 8 am; Public 9 am.
Place: Iroquois, Ontario; at the Iroquois Civic Building, 1 Dundas Street.
Cost: Admission is free; Table rental $10.
Talkin: 145.29(-)
Info: For table rental contact Mike at va3tufham@aol.com or Don at va3nc@rac.ca.

WINNIPEG ARC SPRING FLEAMARKET

Sponsor: Winnipeg Amateur Radio Club
Date: Sunday, April 12.
Time: Coffee, muffins, eyeball QSOs 9:30 am; Vendors: 9:45 am to 10:30 am. Public: 10:30 am. Prize Draws: 11:30 am.
Place: Winnipeg, Manitoba; at the Heritage Victoria Community Club, 950 Sturgeon Road.
Description: Opportunity to buy and sell new and old equipment of interest to Amateurs. Also, the best chance for new hams to meet oldtimers and learn more about our hobby.
Cost: $5 per person, exact change preferred
Tables: $5 each for WARC members, $10 for everyone else. To book your table contact Ruth, VE4XYL, at ve4se@mymts.net or 204-837-6915.
Talkin: 147.390 MHz + offset 127.3 tone
Info: For further information, Dick Maguire VE4HK ve4hk@rac.ca or 204-256-3143.
Web: http://winnipegarc.org/flea_market.html

MAPLE RIDGE SWAP MEET

Sponsor: Maple Ridge Amateur Radio Club
Date: Sunday, May 3.
Time: Vendors at 7:30 am; Public 9 am. Open for pancake breakfast 8 am. Concession will remain open during the event.
Place: Pitt Meadows, British Columbia; 12460 Harris Road, one Block South of the Lougheed Highway in the old REC Building.
Description: Ham Radio & Computer Swapmeet. The largest in the Fraser Valley. Great prices lots of stuff.
Cost: Public $5 (includes a chance to win a radio); Tables $20 (includes one entry and a chance to win a radio).
Talkin: 146.800 -600 + Tone 156.7
Info: Call Nick at 604 465-9476 or contact ve7te@mrarc.net.
Web: http://www.mrarc.net

31ST SMITHS FALLS FLEAMARKET

Sponsor: Rideau Lakes Amateur Radio Club
Date: Saturday, May 9.
Place: Smiths Falls, Ontario; at the Smiths Falls Curling and Squash Club (same location as last year), on Old Sly's Road. Check our website for a site map.
Time: Vendors 7 am; Public 9 am.
Cost: Vendors: Tables (Approx. 2 1/2 X 5 ft) $10 (admission not included). Admission: $5 (includes a door prize ticket). Youth under 16 are admitted Free of Charge.
Talkin: VE3RLR on 147.21 MHz+.
Description: Our 31st Annual Fleamarket of Amateur Radio equipment includes a large number of Commercial and Private Vendors, a Canteen, a Consignment Table and an Equipment Test Table.
Info: For more information or reservations, contact ve3rlr@yahoo.ca.
Web: http://ve3rlr.dyndns.org

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- Ladder Line (300, 440, & 450 Ohm)
- Antenna Wire (bare, tinned, & insulated)
- Baluns 1:1, 4:1, 6:1 (stainless hardware)
- RF Coaxial Chokes (160m thru 6m)
- Fiberglass Rods & Tubes
- Dacron Rope (3/32" to 5/16" dia.)
- Aluminum tubing (telescopic)
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QUEBEC HAMFEST 2015

Sponsor: Club Radio Amateur VE2CBS Sorel-Tracy inc.
Date: Sunday, May 31.
Time: Inside Vendors 6 am; Public 7 am to 12 noon. Snack bar ready to serve you.
Place: Sorel-Tracy, Quebec; 200 rue Victoria.
Cost: $8 (free at 11 am); Vendors: Inside tables $15 includes one admission.
Talkin: Listen to the VE2RBS repeater on 145.370 (CTCSS 103,5). VA2CST-C 146.985 MHz - DV, VE2FCT-B 446.250 M - DV.
Info: Contact ve2cbs@raqi.ca.
Web: http://www.hamfest.qc.ca/

ARTICLES WANTED

We would love to receive your articles – both technical and non-technical.

Why not share your Amateur Radio projects, activities and experiences with TCA readers.

Please send them to the TCA Editor at tcamag@yahoo.ca. The deadline for the next TCA is January 15.

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Jerry Rosalius, WB9Z
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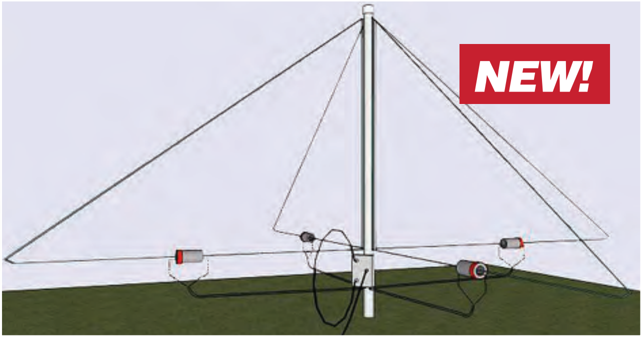

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